

RAPPORT ANNUEL

1947

ANNUAL REPORT



SOCIÉTÉ

PROVANCHER

SOCIETY



La Société Provancher
d'Histoire Naturelle
du Canada

FONDÉE EN 1918

The Provancher Society
of Natural History
of Canada

FOUNDED IN 1918



QUEBEC

Secrétariat

Secretary's Office

85, DES FRANCISCAINS
TÉL.: 3-4408



HONORARY PATRON



His Excellency

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ALEXANDER OF TUNIS, K.G., G.C.B., G.C.M.G.,
C.S.I., D.S.O., M.C.**

Governor General of Canada.



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C.S.I., D.S.O., M.C.**

His Excellency

**FIELD-MARSHAL THE RIGHT HONOURABLE VISCOUNT ALEXANDER OF TUNIS,
K.G., G.C.B., G.C.M.G., C.S.I., D.S.O., M.C.
Governor General of Canada
Gouverneur-Général du Canada**

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La Société Provancher d'Histoire Naturelle du Canada

“ j’aime, j’instruis, je protège ”

RAPPORT ANNUEL 1947

Il existe en Amérique et dans notre pays des problèmes de conservation de la faune qui ont fait couler beaucoup d'encre et produit des différences d'opinion.

Chacun semble disposé à blamer les autres pour la situation actuelle et la question a rendu perplexe le citoyen consciencieux qui recherche l'intérêt général et ne sait vraiment à qui s'adresser pour obtenir un exposé conforme à la vérité.

Il ne faut pas oublier que ce problème de la faune est l'un de ceux qui ne peuvent se régler d'un trait de plume ou à une date déterminée. C'est un problème permanent dont la solution exige une attention constante, un respect général des lois existantes, une expansion raisonnée de nos réserves actuelles et la création immédiate de nouveaux refuges et parc nationaux.

Il y a plus de chasseurs qu'autrefois, par conséquent moins de gibier pour chaque chasseur. Si l'amateur de chasse n'est pas un conservationiste il s'en suivra infailliblement l'extinction de certaines espèces et, comme conséquence naturelle, pas de gibier pour beaucoup de chasseurs. Il faut aussi prendre en considération les néfastes exigences de notre civilisation moderne; des territoires qui servaient d'habitat à la vie sauvage sont envahis graduellement par l'industrie et l'expansion des centres. Les possibilités de reproduction vont en diminuant et il faut nécessairement créer de nouveaux refuges où l'animal et l'oiseau pourront assurer la continuation de leur espèce.

Le problème ne concerne pas seulement les naturalistes mais tous les habitants d'Amérique. Il faut éveiller notre entourage à la nécessité de la conservation; il faut enseigner à nos jeunes

The Provancher Society of Natural History of Canada



"I love, I teach, I protect"



ANNUAL REPORT 1947

There are vital conservation issues at stake in North America and most of them have been the cause of many arguments and different points of view.

Everybody seems ready to blame the other fellow for the present situation of game reserves of all kinds, and there are so many arguments and recriminations that the average citizen is at a loss to know what to believe and where to go for an honest appreciation of the actual situation.

An important point must be kept in mind: the problem of wildlife is a permanent one and not one that can or will be settled in any one year. Therefore the situation calls for constant attention to reserves, careful observance of rules and intelligent development of new refuges, national parks and game reserves.

There are more hunters than before and consequently less game for each hunter. If every hunter is not a conservationist it will mean the extinction of certain species and therefore no hunting for a lot of hunters. Added to that is the constant encroachment of civilization upon the land; whole areas which served as habitats for wildlife are being taken over for industrial and civilian needs. The possibilities for reproduction are decreasing, which means that new refuges must be found or created for birds and animals in order to supply them with undisturbed areas where they may breed and live in peace.

The problem is an important one, not only to naturalists but to every citizen of North America. Our neighbours and friends

les grands principes de la protection. La collaboration de tous et de chacun doit appuyer les efforts des spécialistes.

Nous ne pouvons mieux illustrer ces quelques remarques qu'en citant quelques mots de la déclaration de l'Hon. Camille E. Pouliot, M.D., ministre de la Chasse et des Pêcheries, à l'occasion de la première semaine nationale de conservation, 10 au 17 avril 1948 :

« Le nombre sans cesse croissant des chasseurs et des pêcheurs, l'accessibilité de la plupart de nos territoires et la rapidité avec laquelle on voyage de nos jours, constituent, avec l'audace des braconniers, le plus grand danger d'extermination rapide et irréparable auquel le poisson et le gibier du Québec ont eu à faire face dans l'histoire de notre province.

... « Il est grand temps d'ouvrir les yeux. A cet esprit de destruction qui semble animer encore un trop grand nombre de personnes, il faut que succède ce véritable amour de la vie en forêt qui permet de jouir raisonnablement de nos ressources naturelles sans jamais en abuser, tout en ayant le désir sincère de les protéger des innombrables abus qui menacent leur survivance » ...

La Société Provancher, soit dit en passant, ne s'occupe pas seulement d'ornithologie mais de toutes les branches de l'histoire naturelle. Elle n'est pas contre la chasse et les chasseurs ; elle est simplement opposée à toute chasse qui met en danger l'existence des espèces.

Conférences de la Société

Deux conférences gratuites furent données pendant l'année.

La première était un programme de vues animées montrées à l'Institut Canadien le 5 mai grâce à la collaboration de M. Jos. Morin, chef de la Ciné-Photo de la province. Les films suivants passèrent sur l'écran : Quelques oiseaux du Canada, Au-dessus des frontières, Arctic thrill, Bobolink and Blue-Jay, Realm of the Wild.

La seconde fut une conférence du Dr Jacques Rousseau, directeur du Jardin botanique de Montréal, sur le Mexique avec projections en couleurs. Les autorités de l'université Laval avaient gracieusement mis à notre disposition la Salle des Promotions pour cette soirée du 4 décembre et un auditoire distingué vint applaudir les paroles et les projections du Dr Rousseau. A notre demande,

must be awakened to the necessity of conservation; children must be taught the great rules of protection, the law of diminishing returns. Specialists and naturalists alone cannot solve the problem.

We take the liberty of quoting a few words from the statement by Honourable Camille E. Pouliot, M.D., Provincial Minister of Game and Fisheries, on the occasion of the first Canadian National Wildlife Week, April 10 to 17 1948 :

« The ever-increasing number of anglers and hunters, the easy access to most of our territories, the speed of modern transportation and the poachers' boldness constitute the biggest menace of swift and irreparable extermination ever faced by our fish and our game in the history of Quebec province.

. . . . « It is high time that we open our eyes. The crave for destruction which still moves too many of our people must be replaced by a genuine love of our wild life which permits the enjoyment of our natural resources within reasonable limits, while a sincere intention prevails to protect them from the numerous abuses threatening their survival »

The Provancher Society is in the same position as other organizations: we are not against hunting in itself, we are only opposed to the kind of hunting that will endanger the continued existence of any species of bird or animal.

Public lectures by the Society

Two free lectures were organized during the year

The first one, on May 5, 1947, was a moving-picture show due to the cooperation of Mr Jos. Morin, Director of the Cine-Photo Dept. of the Province. The following films were shown at the Institut Canadien : Over the border, Birds of Canada, Arctic thrill, Life on Western marshes, Bobolink and Blue-Jay, Realm of the Wild.

The second was a lecture on Dec. 4th by Dr Jacques Rousseau, Director of the Botanical Gardens of Montreal. His subject was Mexico and his text was illustrated with colored slides. The authorities of Laval University had graciously placed the Salle des Promotions at our disposal and a large gathering filled the hall.

le Dr Jean Louis Tremblay, professeur à la Faculté des Sciences et directeur de la Station biologique de Grande Rivière, présenta le conférencier.

Nos plus sincères remerciements à Mgr A. M. Parent, secrétaire de l'Université, au Dr Rousseau, au Dr Tremblay et à M. Jos Morin.

The American Association of Museums

Le 42ème congrès annuel de l'Association Américaine des Musées s'est tenu au Château Frontenac les 30 et 31 mai 1947. La Société Provancher n'y prit aucune part mais le secrétaire profita de l'occasion pour placer sur les tables disposées à l'entrée de la grande salle de délibérations une centaine de copies de notre dernier rapport annuel et 125 copies de « La petite histoire de l'Ile-aux-Basques et des Razades ». Dès la seconde journée il ne restait que quelques copies grâce à la collaboration du Rév. Frère Florian V. Crête, C.S.V., directeur du musée de l'Institut des Sourds-muets, Montréal, qui s'était gracieusement chargé de la distribution aux membres de la convention.

Divers

L'assemblée générale annuelle eut lieu le 26 mars à l'Institut Canadien et se termina par un court programme de vues animées. Au cours des délibérations, des remerciements furent votés au gouvernement provincial et à l'Honorable Camille Eugène Pouliot, M.D., ministre de la Chasse et des Pêcheries, pour la continuation de l'octroi annuel versé à la Société.

Nous avons renouvelé notre affiliation à la National Audubon Society.

Il nous fait plaisir de mentionner que M. Charles Morency a repris ses fonctions de gardien des îles.

Au cours de l'année, deux membres à vie et vingt-huit membres actifs furent acceptés. M. Henry Mousley et le Dr Jacques Rousseau, de Montréal, furent nommés membres honoraires. Malheureusement la mort vient toujours faucher quelqu'un des nôtres et il nous faut déplorer le décès du Colonel W. Wood, de Québec, et de M. Jos Labrie, de Trois-Pistoles, tous deux membres à vie, et de M. Jos. Laurin, de Québec, membre actif.

We tender our most sincere thanks to Mr Morin, Mr Rousseau and Mgr A. M. Parent, Secretary of Laval University.

American Association of Museums

The 42th Annual Meeting of the American Association of Museums was held in Quebec on May 30 and 31 at the Chateau Frontenac. The Society did not actually take any part in the convention but the secretary took the opportunity to place on the tables at the entrance of the main hall 100 copies of our 1945 Annual Report and 125 copies of « La petite histoire de l'Ile-aux-Basques et des Razades ». On the second day most of these booklets were gone, thanks to Rev. Brother Florian V. Crête, C.S.V., Director, Museum of the deaf and dumb Institute, Montreal, who graciously took charge of the distribution.

Miscellaneous

The general annual meeting held on March 26, at the Institut Canadien, was well attended and several resolutions were adopted. Dr Camille Eugène Pouliot, Minister of Hunting and Fisheries, was the object of a special vote of thanks for continuing his protection by an annual grant to the Society. The evening was concluded with a short program of moving pictures.

We have renewed our affiliation to the National Audubon Society.

We are happy to report that Mr Charles Morency has resumed his activities as warden of the islands.

Two life members and twenty-eight active members were received during the year. Mr Henry Mousley and Dr Jacques Rousseau, of Montreal, were made honorary members. We had to record the loss of two life members, Col Wm Wood of Quebec, and Mr Jos Labrie, of Trois-Pistoles, and an active member, Mr Jos Laurin, of Quebec, who died in 1947.

Nos refuges d'oiseaux

Avez-vous déjà campé sur une île ? Connaissez-vous la délicieuse sensation de paix et de solitude du campeur après les activités de la journée ? Avez-vous jamais assisté au réveil de la nature, entendu les premiers chants des oiseaux ? Si l'occasion se présente ne la manquez pas.

Les visiteurs furent assez nombreux pendant la saison 1947. Mentionnons en passant :

Le Dr John B. May, ancien ornithologiste du Massachusetts, qui fit deux voyages aux îles.

Messieurs Duncan, Mercier et Garneau, entomologistes du Ministère de l'Agriculture, qui passèrent quelques jours sur l'Île-aux-Basques et visitèrent les Razades pour continuer l'inventaire des insectes commencé en 1946.

MM. Jos. Morin et Paul Carpentier, de la Ciné-photo provinciale, qui travaillèrent pendant trois jours aux îles à la continuation du film en couleurs qu'ils préparent pour la Société.

Les étudiants des cours d'été à Trois-Pistoles firent aussi leurs excursions habituelles à l'Île-aux-Basques.

Deux de nos jeunes membres, François Hamel et Alex. Desmeules, campèrent pendant une semaine sur l'Île-aux-Pommes, propriété du Dr D. A. Déry, pour étudier les nombreuses espèces d'oiseaux de mer qui s'y trouvent.

Pour ce qui regarde « nos » oiseaux, la saison fut extrêmement tardive par suite de la température réellement mauvaise du printemps de 1947. Il y avait encore beaucoup de neige au mois de mai, et les oiseaux furent lents à se montrer. Comme d'habitude les Bernaches, les Canards noirs et les Bucéphales furent les premiers arrivants, suivis des Goélands et des Eiders.

Les premiers nids de goélands furent trouvés sur la Razade d'en haut le 15 mai, ainsi que deux nids de canards Eider sur la Razade d'en bas. Il y avait encore de la glace et de la neige.

A la fin de mai, les nids étaient nombreux sur les trois îles. L'éclosion était commencée quand le gardien fit sa ronde le 3 juin puis la vie normale se continua dans la nature. D'après les conclusions du gardien les oiseaux semblent avoir été aussi nombreux que d'habitude malgré la saison tardive, le froid et le grand vent qui régnerent jusqu'à l'été.

Our Bird Sanctuaries

Have you ever camped on an island? Do you know the marvellous feeling of peace and solitude of the camper in the evening? Have you ever heard the faint booming sounds that float across the water on a solitary island? the different sounds of night life in the bush? If not, you have missed something . . .

Our islands received several visitors during the summer.

Dr John B. May, former ornithologist of the State of Massachusetts, made two trips to Basque Island and the Razades.

Three entomologists of the Department of Agriculture, Mssrs Duncan, Mercier and Garneau, continued the inventory of insects which was started last year and camped on Basque Island from June 23rd to June 27th.

Alexandre Desmeules and François Hamel, two of our young members, spent a few days on the islands to study birdlife.

Staff members of the Cine-Photo Dept of the province, Mr Jos. Morin, Director, and Mr Paul Carpentier, cameraman, also continued their work on the kodachrome film which they have in preparation for the Society.

French and English students and teachers attending summer classes at Trois-Pistoles took their usual boat trips to Basque Island.

As regards bird life on the islands the season was extremely tardy due to severe weather in the spring. There was still plenty of snow in May and birds were late in coming. As usual, Brants, Black Ducks and Golden-Eyes were the first arrivals and they were followed by Eiders and Herring-Gulls.

The first gulls' nests were found on the Upper Razade on May 15th and two nests of Eiders were seen on the Lower Razade on the same day. Snow and ice were still abundant.

The warden reported nests in good numbers on all three islands at the end of May. By June 3d hatching had started and from then on nature followed its course. Birds were considered as numerous as on previous years. The weather was stormy and cold throughout the spring.

Les conférences Audubon

Il nous fait grand plaisir d'annoncer à nos membres et amis que nous avons pris l'initiative de présenter à Québec les conférences de la Société Audubon. Il y aura donc une série de cinq conférences qui commenceront dans l'automne 1948 et amèneront dans notre ville cinq branches de l'histoire naturelle. Ce sont tous des naturalistes de marque, à réputation bien établie, et dont les films ont mérité les plus grands éloges partout où ils ont été montrés.

Nous pouvons dès maintenant donner les dates, les noms des conférenciers et les titres des films :

Novembre 3, 1948 Alexander Sprunt, Jr, « *From Coast to Crest* ».

Décembre 13, 1948 . . . Karl H. Maslowski, « *Saguaroland* ».

Janvier 10, 1949 Howard Cleaves, « *Midnight movies in animaland* ».

Février 10, 1949 Tom and Arlene Hadley, « *Happy Valley* »

Mars 28, 1949 Olin S. Pettingrill, Jr, « *Athabasca sojourn* ».

C'est une nouvelle initiative de la Société Provancher qui entraînera nécessairement des dépenses considérables. Nous avons donc décidé de faire imprimer des cartes d'entrée dont chacune permettra l'admission aux cinq conférences, en autres mots des « billets de saison » qui seront offerts en vente à des prix raisonnables pouvant se comparer à ceux des cinémas. Il y aura des billets spéciaux pour les jeunes.

Une circulaire sera envoyée à tous nos membres et amis. Ces films n'ont jamais été montrés à Québec et ne passent pas sur l'écran des théâtres de vues. Ce sont des attractions spéciales et nous espérons que le public québécois leur accordera l'encouragement voulu. C'est le public qui décidera en dernier lieu si les Conférences Audubon reviendront l'an prochain avec d'autres films et d'autres conférenciers.

Audubon Screen Tours

We are pleased to notify our members and friends that we have subscribed to the Audubon Screen Tours. There will be a series of five lectures starting in the fall of 1948, all with coloured films. They will be delivered by five different lecturers of the National Audubon Society on different branches of natural history. These lecturers are all outstanding naturalists and their special films have been highly praised in all the large centers where they were shown.

Final details have yet to be worked out but we are in a position to give the dates, the names of the lecturers and the titles of their films:

November 3. Alexander Sprunt, Jr, « From Coast to Crest ».

December 13. Karl H. Maslowski, « Saguaroland ».

January 10. Howard Cleaves, « Midnight movies in animal land ».

February 10. Tom and Arlene Hadley, « Happy Valley ».

March 28 O. S. Pettingill, Jr, « Athabasca sojourn ».

This is a new departure for us and this experiment naturally entails heavy expense which is above our means. We have therefore decided to print a single ticket for all five lectures and these tickets will be sold to the public at a price to be decided upon shortly but which will be very reasonable; as a matter of fact, it will compare with prices to ordinary picture shows. There will be special prices for children and also separate tickets for each lecture.

A circular letter will be sent to all our members and friends within a few weeks. We are bringing to Quebec films never shown here and which do not appear in moving-picture houses. They are something to delight and satisfy the most discriminating spectator. We are confident that the Quebec public will respond enthusiastically. The support accorded this experiment will decide whether Audubon Screen Tours will continue to come to our city in the future.

Notre rapport annuel

Nous offrons nos plus sincères remerciements aux auteurs des travaux présentés dans ce rapport: le Dr Carl Faessler, nos entomologistes MM. Duncan, Mercier et Garneau, et M. Carl W. Buchheister, vice-président de la Société Audubon.

Nous sommes aussi très reconnaissants envers « The Carling Conservation Club » et M. Stuart L. Thompson de nous avoir gracieusement accordé la permission de reproduire en français et en anglais l'article sur P. A. Taverner.

Dans notre rapport annuel 1940 nous avons publié en français l'histoire de nos îles de Trois-Pistoles: « La petite histoire de l'Île-aux-Basques et des Razades ». Nous avons révisé ce travail et l'avons traduit en anglais et sommes heureux de pouvoir l'offrir à nos lecteurs cette année. Nous le faisons aussi tirer à part sous forme de plaquette. Nous avons encore en mains quelques copies du texte français et serons heureux de les faire parvenir à ceux qui voudront se les procurer. Il en faudra probablement une seconde édition avant longtemps.

Notre vive gratitude au Dr Jacques Rousseau et à M. James Kucyniak, de Montréal, qui ont bien voulu nous apporter leur secours inestimable dans la traduction du travail sur la flore des îles par le regretté Frère Marie-Victorin.

GEORGES A. LECLERC,
secrétaire.

CONTRIBUTIONS

Membres bienfaiteurs.	\$100.00	
“ patrons.	50.00	
“ à vie	25.00	
“ actifs	1.00	} (annuelles)
“ écoliers.	0.10	

Our Annual Report

Our sincere thanks go to the contributors whose articles appear in this report: Dr Carl Faessler, our entomologists and Mr Carl W. Buchheister, Vice-President of the Audubon Society.

We are also extremely grateful to The Carling Conservation Club and to Mr Stuart L. Thompson for their kind permission to reprint Mr Thompson's article on P. A. Taverner.

In our 1940 annual report we published in French the history of our islands at Trois-Pistoles, P.Q.: « La petite histoire de l'Île-aux-Basques et des Razades ». We have revised and translated this work into English and are pleased indeed to offer it to our readers. It is also being printed in a separate booklet. For the information of our French members, we still have on hand a few copies of the « Petite histoire » and shall be glad to send it to those who ask for it. A second edition will probably have to be issued before long.

As regards the English text, we wish to thank Dr Jacques Rousseau and Mr James Kucyniak, of Montreal, who were kind enough to help us out in the translation of the botanical report by the late Rev. Brother Marie-Victorin.

GEORGES A. LECLERC,
Secretary.

CONTRIBUTIONS

Benefactor members	\$100.00	
Patron members	50.00	
Life members	25.00	
Active members	1.00	} (Annual)
School members	0.10	

L'Extension maximum de la mer Champlain au nord du St-Laurent, de Trois- Rivières à Moisie

par Carl FAESSLER

Université Laval.

INTRODUCTION

Les études physiographiques d'une région ne sont pas, d'habitude, parmi celles qui rapportent des dividendes en découvertes d'intérêt économique et c'est là la principale raison pour laquelle elles sont si souvent négligées. Mais par contre, elles représentent le meilleur moyen pour faire comprendre à celui qui n'est pas versé dans les sciences géologiques, le multiple travail de la nature et lui font mieux saisir l'idée de l'évolution géologique de la région qu'il habite. Au point de vue de la vulgarisation de la géologie, elles fournissent par conséquent le meilleur matériel d'enseignement récolté souvent à la porte même de nos demeures.

Dans la région de Québec et en général dans toutes les régions limitrophes entre le St. Laurent et la région Laurentienne, à cause de la date récente des nombreux changements géologiques que ces régions ont subis, les études de ce genre sont particulièrement instructives et faciles à comprendre.

Nous devons nous rappeler que cette région portait pendant environ un demi million d'années, une couche de glace du genre de celle qui couvre encore de nos jours le Groenland et d'autres îles de l'arctique. Le glacier se retirait, et depuis environ 20,000 ans l'est du continent nord-américain ne compte plus de glacier à l'exception de quelques lambeaux ça et là le long de la côte du Labrador. Mais les vestiges que cette époque glaciaire a laissés dans nos régions sont multiples, dont surtout les moraines glaciaires qui constituent la plupart de nos gravières et sont magnifiquement

exposés le long des routes à travers les Laurentides. (Fig. 1). Ces dépôts glaciaires sont la principale cause de l'existence de ce grand nombre de lacs dans les Laurentides qui constituent tout simplement des accumulations, entre les dépôts glaciaires, des eaux de fonte et de drainage. Un grand nombre de ces lacs se sont vidés au cours des temps écoulés depuis la disparition des glaciers et ont laissé à leur emplacement des tourbières ou des plaines fertiles, sui-

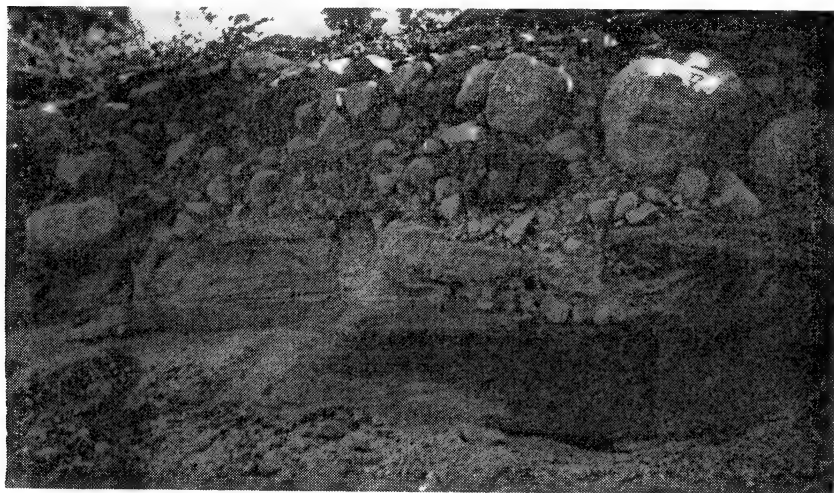


Fig. 1. Moraine glaciaire sur la route 56, près du Lac Perreault.

vant le degré de l'assèchement, tandis que d'autres sont encore en train de se vider lentement de sorte que le système hydrographique dans nos Laurentides est loin d'être stabilisé ; au contraire il est au milieu d'une période de développement et de rajustement. Dans les Basses Terres du Saint-Laurent le système hydrographique est encore moins bien fixé que dans les Laurentides parce qu'une intervention géologique de date encore plus récente que la glaciation mais en relation étroite avec elle, a contribué à son établissement : c'est l'invasion marine Champlain. L'énorme masse de glace épaisse de plus de 3,000 pieds, exerçait une formidable pression sur le continent et sous ce fardeau celui-ci s'enfonça de sorte que ce qui avait déjà été au niveau de la mer aux temps qui précédaient la

glaciation, était porté à des niveaux de plusieurs centaines de pieds plus bas. Ceci était surtout vrai de la vallée du St. Laurent et de ses tributaires de sorte qu'au moment où la glace se retira de la région du fleuve et du golfe, la mer l'envahit immédiatement et poursuivit le glacier retraitant dans les vallées du St. Laurent et de ses tributaires jusqu'à un niveau qui correspondait à l'affaissement du continent. Dans la région de Québec cette mer atteignit des points qui aujourd'hui sont situés à environ 600 à 650 pieds au dessus du niveau de la mer actuelle. A mesure que les glaciers retraient vers le nord, le continent, allégé du fardeau, commença de se relever de nouveau, mouvement qui continue de nos jours et se continuera aussi longtemps que le continent n'aura pas atteint à peu près la cote qu'il avait avant la glaciation. Actuellement il lui reste à racheter encore plusieurs centaines de pieds. Ce mouvement de rehaussement est assez rapide pour que l'homme puisse s'en apercevoir au cours des temps historiques. Ainsi nous lisons dans l'histoire du Canada que Jacques Cartier en 1536 remonta la rivière St-Charles pour aller hiverner près du ruisseau Lairet : aujourd'hui, même s'il n'y avait pas de ponts sur la rivière St-Charles il serait bien difficile pour les bateaux du tirage des « Hermines » de remonter la rivière St-Charles jusqu'au Lairet. En 1763 lors de la bataille décisive des Plaines d'Abraham, la flotte de Wolfe entra dans le ruisseau St-Denis et débarqua les troupes de choc dans l'Anse-au-Foulon ; mais cette baie de nos jours n'est plus jamais inondée par les eaux du St-Laurent. De plus, chaque habitant de la côte de Beaufort va vous dire que depuis les temps de ses ancêtres il a gagné beaucoup de terre d'excellente qualité sur le bord de l'eau ; des terres qui étaient régulièrement inondées par le St-Laurent, aux temps du grand-père, sont aujourd'hui rehaussées et desséchées. Le chenal nord, entre l'île d'Orléans et la côte de Beaufort est aujourd'hui en train de s'en aller et avant longtemps il partagera le sort qu'a subi sa continuation vers l'ouest, i.e. les vallées des rivières St-Charles et Cap-Rouge, une dépression située entre le promontoire de Québec et les Laurentides, qui, il n'y a pas très longtemps était le chenal nord bordant l'île sur laquelle se dressent aujourd'hui les bourgades de Québec, de Sillery et de Ste-Foy.

Dans cette mer, dite la mer Champlain parce qu'elle se rendit jusqu'au lac de ce nom, se déposa ce qui constitue de nos jours la richesse agricole des Basses Terres du St-Laurent, les terres arables sablonneuses ou glaiseuses qui s'étendent des deux côtés du fleuve, entre les Laurentides au nord et les hauteurs appalachien-



Fig. 2 Éboulis de Donnacona, montrant la grande épaisseur des dépôts de glaise et de sable de la mer Champlain.

nes au sud. (fig.2). Cette mer qui vient seulement de se retirer de nos terres, il y a peut-être 10,000 années seulement, au moment de sa plus forte extension, entraînait loin dans les vallées des tributaires du St-Laurent et dans ce qui suit j'essayerai de fixer les points extrêmes de l'invasion marine au nord du fleuve. Je me bornerai au tronçon de la côte nord du St-Laurent qui va des Trois-Rivières à Moisie, situé à 460 milles en aval de Québec, région que j'ai parcourue dans tous les sens depuis 25 ans.⁽¹⁾

La mer Champlain au nord du fleuve

Dans la vallée de la rivière St-Maurice, la mer Champlain dépassait considérablement la région de Fitzpatrick, en amont de

(1) Voir liste bibliographique.

la Tuque (551'), en formant un étroit bras de mer qui partait des Grandes Piles. Vers l'est la mer baignait le pied des collines laurentiennes qui se dressent des Grandes Piles jusqu'à Hervey (583') tout en laissant un chapelet de petites îles qui, de nos jours, font saillie dans les plaines cultivées sous forme de collines boisées et incultes. Ces îles sont très apparentes dans la région de Valmont entre Shawinigan et St-Louis de France, dans la région de St-Tite, de St-Adelphe et de St-Thuribe ; elles font partie des contreforts des Laurentides. Sur l'emplacement des paroisses de St-Ubal, de Montauban et de Notre-Dame-des-Anges, la mer formait une grande étendue d'eau intérieure, connectée avec la haute mer seulement par des étroits chenaux dont l'un suivait à peu près la route de St-Casimir à St-Ubal, l'autre communiquait avec Hervey et un autre suivait la rivière Blanche où se déposèrent ces riches terres récemment ouvertes à la colonisation dans le canton d'Alton. A partir de St-Thuribe, le littoral suivait le pied des Laurentides le long d'une ligne à peu près parallèle à la rivière Ste-Anne et à environ 2 à 3 milles au nord de ce cours d'eau pour se diriger vers le village de Ste-Christine ; avant de l'atteindre il se redressait de nouveau vers le nord, pour inonder toute la région où se trouvent aujourd'hui les villages de Allen's Mill, de St-Léonard et de St-Raymond.

La région de St-Raymond est particulièrement intéressante pour le géologue parce que c'est là que s'ouvrent deux anciennes vallées importantes, celles des bras de l'Est et du bras du Nord de la rivière Ste-Anne ou nommés aussi respectivement la rivière Tourilli et la rivière Petit-Saguenay. Les vallées de ces deux rivières étaient longtemps occupées par des langues de glaciers qui charroyaient d'énormes quantités de matériaux meubles vers la plaine qui s'étend à leur jonction, plaine qui à ce moment-là était sous l'eau de la mer Champlain. Dans cette mer se déposaient le sable et la glaise des plaines cultivées de la région. Les deux glaciers s'avançaient de temps en temps et poussaient vers cette mer de grandes quantités de gravier qui en grande partie fut remanié par les vagues de la mer ; dans d'autres cas cependant, le volume de débris apporté par les glaciers fut trop grand pour être remanié et ces dépôts glaciaires non-remaniés se trouvent aujourd'hui sous forme de gravières ou de moraines non-triées en plein milieu des

plaines de sable marin, comme par exemple dans le rang St-Jacques, juste à l'ouest du carrefour de chemins où ce rang rejoint la route de St-Raymond-St-Léonard. Vers la fin de la glaciation, alors que la mer Champlain couvrait toute la région de St-Raymond (455'), une moraine frontale avait probablement barré toute la vallée du Bras du Nord près du pont situé à 13 milles en aval de la chapelle du Petit-Saguenay. En amont de ce barrage, dont le cirque est magnifiquement conservé, les eaux de la rivière s'accumulaient et formaient un lac glaciaire temporaire dans lequel furent déposées les plaines de sable du Petit-Saguenay, cultivées aujourd'hui jusqu'à un niveau qui dépasse celui de la mer Champlain de la région. Des conditions semblables prévalaient probablement aussi dans la vallée de la rivière Tourilli.

De St-Raymond le littoral de la mer Champlain se dirigeait vers le lac Sergent qui est un délaissé de cette mer. Au sud du lac Sergent les Laurentides formaient une longue pointe dirigée vers le S.-O., située entre les rangs du Bourg-Louis et du Brûlé de Pont-Rouge. Le lac St-Joseph est un autre délaissé de la mer Champlain ainsi que le lac St-Charles.

Plusieurs lacs glaciaires existaient dans la région de Valcartier-Tewkesbury-Stoneham où des dépôts fluvio-lacustres sont cultivés jusqu'à des niveaux de 1,200 pieds. Plusieurs grands glaciers envoyaient leurs matériaux de délavage vers cette région des contreforts, située en dedans d'un arc qui passe par Notre-Dame-des-Laurentides, Loretteville, St-Gérard et Ste-Catherine. Cette plaine est parsemée de collines basses qui avaient été complètement ou partiellement inondées par la mer Champlain, et qui se trouvaient souvent directement dans le chemin des courants de matériaux morainiques apportés par les glaciers et jouaient par conséquent un important rôle dans la disposition des dépôts glaciaires. Les matériaux de délavage glaciaire peuvent être observés aussi loin que Duchesnay, Ste-Catherine, Juneau au Grand Cap Sa, St-Gérard, Loretteville, St-Emile et St-Pierre de Charlesbourg. Ces endroits sont situés sur un demi cercle et le terrain situé en dedans de cet arc comprend les grandes plaines de Ste-Catherine, de Valcartier et du lac St-Charles-Val St-Michel ; ces plaines de sable ont été déposées pour la plupart dans la mer Champlain qui avait inondé la plaine de délavage glaciaire. A certaines époques, le

matériaux glaciaires ainsi poussés vers la plaine (inondée ou non par la mer Champlain) pouvaient s'accumuler, surtout quand des collines rocheuses des contreforts laurentiens se trouvaient dans le chemin de la poussée, et ainsi former des hauteurs continues derrière lesquelles les eaux des rivières pouvaient s'accumuler pour former des lacs glaciaires ou derrière lesquelles les eaux de la mer Champlain quand elle se retira de la région, pouvaient être retenues pour



Fig. 3 Valcartier ; à l'arrière-plan on voit les terres cultivées du rang 4, situées à un altitude de plus de 1000 pieds.

devenir des lacs détachés de la mer. Ainsi, un glacier puissant qui descendait la vallée de la rivière Jacques Cartier en amont du village de Valcartier, avait au cours d'une longue période accumulé assez de matériaux morainiques entre les collines de la région de Valcartier (Hart Hill, Maple Hill, Pinkneys Hill, Snow Hill, McClary Hill) pour permettre aux eaux de la rivière de s'accumuler en amont de ces collines et former un lac glaciaire qui atteignait peut-être à un moment donné et pour une courte durée, le niveau de 1,200 pieds. Ceci expliquerait le fait qu'il existe des terrains cultivables à une altitude de plus de 1,000 pieds dans le rang 4 de Valcartier (fig. 3) et dans la région de Tewkesbury. Ce lac au

moment de son plus haut niveau aurait alors eu une extension très considérable ; une décharge se trouvait à ce moment là probablement à Tewkesbury; elle passait par les Trois-Lacs pour aller rejoindre la rivière Huron près de Stoneham; une autre décharge se trouvait probablement à Valcartier, entre Hart Hill et Pinkneys Hill qui fut creusée plus vite que celle de Tewkesbury/Trois-Lacs de sorte que le lac baissa rapidement en se vidant au moins partiellement vers la rivière Jacques Cartier actuelle; il est cependant très probable qu'un lac moins grand pouvait se tenir longtemps encore au niveau d'environ 750 pieds dans la région du village de Valcartier dans lequel se déposèrent les grandes plaines de sable de Valcartier Village. Un autre barrage morainique retenait probablement les eaux de la Jacques Cartier dans la région de Tewkesbury pour former un autre lac glaciaire dans lequel prirent naissance les terrains sablonneux et glaiseux de la région de Tewkesbury ; peu à peu la rivière Jacques Cartier nettoya la gorge remplie de sédiments entre Tewkesbury et Valcartier et le lac de Tewkesbury se vida complètement. En aval de cette gorge la rivière continua à approfondir son lit ce qui amena finalement l'assèchement complet du lac glaciaire de Valcartier.

Des conditions analogues existaient aussi dans la région du lac St-Charles où le glacier descendant de la vallée de la rivière Huron (St-Adolphe) poussait sa plaine de délavage vers les sorties étroites entre les hauteurs de St-Gérard, de Loretteville, de St-Emile et de Notre-Dame-des-Laurentides. La mer Champlain avait probablement couvert toute la région au nord du chapelet de ces collines au commencement de l'invasion marine, jusqu'au pied de la côte de St-Adolphe à 650'; mais lorsque la mer se retira, disons au niveau de 560 pieds, ce chapelet de collines au sud se développa peu à peu en une chaîne ininterrompue de hauteurs derrière laquelle un lac peu profond se forma couvrant toute la région de Val St-Michel, du lac St-Charles et de Stoneham. Son niveau n'était probablement jamais plus haut que 570 pieds de sorte qu'il ne communiquait pas avec la rivière Jacques Cartier. Ce lac, de durée relativement courte déchargeait probablement par deux ou trois échancrures dans le chapelet de collines : la décharge de Val St-Michel vers la rivière Lorette qui suivait à peu près la route actuelle de Val St-Michel ; la décharge de Loretteville par la rivière

St-Charles actuelle ; et peut-être une décharge près de Notre-Dame des Laurentides vers la rivière du Berger et le Jardin Zoologique. De ces trois décharges, celle de Loretteville creusa le plus rapidement et amena l'abaissement du lac jusqu'au niveau de 486 pieds du lac St-Charles actuel ; mais Loretteville était loin d'être le meilleur endroit pour creuser une vallée : bientôt la rivière St-Charles rencontra les rochers durs des contreforts laurentiens au fond de son lit ce qui l'empêcha jusqu'à nos jours et l'empêchera encore pour bien longtemps de drainer convenablement cet ancien fond de mer et de lac qu'est la plaine du lac St-Charles. L'existence de dépôts de sable superposés aux dépôts de la mer Champlain dans cette région, est un autre argument en faveur de l'existence d'un lac post-Champlain ; la sablière actuellement exploitée au village du Lac St-Charles est de cette nature.

Ajoutons que c'est à peu près à cette même époque, i.e. pendant la retraite de la mer Champlain, que le promontoire de Québec dans tout son étendue, de la citadelle au Cap Rouge, était une île. St-Adolphe, situé au nord de Stoneham à un niveau de plus de 900 pieds, donc bien au-dessus du niveau de la mer Champlain, doit son existence aux terrains cultivables déposés dans un lac glaciaire qui s'était formé là en amont d'un barrage morainique dont les restes sont encore parfaitement visibles à la gravière le long du chemin qui conduit au village. (fig. 4). Ce lac fut de courte durée, les terrains étant en couches très minces et mal assorties.

A partir de Charlesbourg, la limite supérieure de la mer Champlain suit de près le pied de nos Laurentides à une distance de 1 à 3 milles du fleuve actuel ; elle entre dans la vallée de la rivière Montmorency jusqu'au Moulin Vallières ; la Retenue, située à la tête de la rivière Laval asséchée (rivière Ferrée) et de la Lottainville actuelle, est un délaissé de la mer Champlain. A la rivière Ste-Anne (de Beaupré) la mer rentrait jusqu'au pied des Sept-Chutes (540') ; à partir du Cap Tourmente elle suivait à peu près le littoral actuel, le long des hautes falaises presque verticales qui y longent le St-Laurent, mais son niveau se tenait à environ 600 pieds au dessus de celui du fleuve. A la Baie St-Paul la mer entrait dans la vallée de la Gouffre jusqu'à environ un mille en amont de St-Urbain ; entre Baie St-Paul et Malbaie elle couvrait les régions des Éboulements et de St-Irénée, inondait la vallée de la rivière

Malbaie jusque bien en amont de la chute Nairn ainsi que la région du lac Ste-Agnès. A St-Siméon, la mer Champlain entrait dans la vallée de la rivière Noire jusqu'à environ onze milles du fleuve actuel.

La région de Tadoussac a été beaucoup affectée par la mer Champlain ; elle entrait par cette large entaille qu'est le Saguenay et inondait toute la dépression du lac St-Jean (330') et c'est



Fig. 4 Vallée de la rivière Huron, en amont de Stoneham ; en A et B on voit les restes d'un barrage morainique.

encore aux sédiments déposés dans cette mer intérieure que nous devons presque toute la richesse agricole des trois comtés de cette région. Cette mer inondait aussi les vallées des rivières Baude et Ste-Marguerite et donnait naissance aux fertiles plaines de Sacré-Cœur de Dolbeau près de Tadoussac, tandis que les hauteurs telle que la Boule et autres près de l'embouchure du Saguenay y formaient des îles.

A la Petite rivière Bergeronne, la mer Champlain montait jusqu'au lac des Sables et communiquait probablement par le lac Paradis avec le bras de mer de Sacré-Cœur de Dolbeau. Une pro-

fonde baie de la mer Champlain située entre Bergeronne et Escoumains entraît jusqu'au lac Raymond et presque jusqu'au lac Duclair ; dans cette baie se déposèrent les terrains cultivés de Bergeronnes, de Bon Désir et des Escoumains et les plaines de sable qui s'étendent loin vers le nord pour continuer dans la vallée de la rivière Escoumains pour une distance de plus de dix milles du fleuve. Entre les Petits Escoumains et le Sault-au-Mouton, le bord de la mer Champlain se tenait à environ deux milles du littoral actuel et dans cette mer furent déposés les terrains cultivés des Petits Escoumains, de Petite Romaine, de la rivière des Vases où la colonisation a poussé jusqu'au bord même de l'ancienne mer située au pied du rebord laurentien actuel, de la baie des Bacons où l'on peut voir quelques unes des plus belles fermes de toute la province. En arrière des villages de Sault-au-Mouton, de St-Paul-du-Nord et de Portneuf, la mer Champlain entraît très loin vers le nord, laissant tout un système d'îles entre ses tentacules qu'elle avançait dans les vallées des rivières Sault-au-Mouton et Portneuf et de leurs tributaires. Par le lac des Cèdres la mer rentrait dans la vallée de la rivière Castor et par là dans celle de la rivière Sault-au-Mouton où elle remontait jusqu'en amont du camp des Crans-Serrés et communiquait, à cet endroit, avec le bras de mer du lac des Cèdres et des rivières Castor et Sault-au-Mouton ; dans la vallée du Sault-au-Cochon elle montait plus loin que le camp du 12-Milles. Entre Forestville et le cap Colombier, la mer entraît dans les vallées des rivières Laval et Blanche sous forme de bras étroits qui communiquaient entre eux dans la région du Pont Laval actuel ; les terrains déposés dans ce bras de mer ont donné naissance à la région agricole de la Rivière Blanche. La mer envoyait un bras aussi loin que la Fosse Adam, dans la vallée de la rivière Laval d'où un autre bras de mer communiquait avec le lac Girard, le lac aux Cèdres et la rivière Laval en aval du lac à Jacques actuel. Dans la vallée de la rivière Blanche elle inondait la région du lac Girouard qui est un délaissé de cette mer.

Au cap Colombier commence cette immense plaine diluvienne, longue de plus de 30 milles et large d'environ 3 milles en moyenne qui s'étend jusqu'à Manicouagan, à l'embouchure de la rivière du même nom. Cette plaine doit son existence entièrement à la mer Champlain au sein de laquelle elle fut formée par accumulation de

sable et de glaise apportés par ces trois grandes rivières, comptant parmi les plus grands affluents du St-Laurent, la Bersimis, l'Outarde et la Manicouagan. Cette plaine avec celle des Caouis dont il sera question plus bas, constitue au point de vue agricole, une réserve potentielle à peine entamée, de très grande valeur ; de petits établissements agricoles se trouvent depuis longtemps aux Iles Jérémie, à Bersimis, à Raguenaud, à la Pointe de Manicouagan et à la Pointe Lebel. A la rivière aux Vases la mer montait par ses deux bras jusqu'à leurs sources où elle formait une petite mer intérieure qui communiquait avec le bras de mer qui occupait la vallée de l'Outarde et s'étendait vers l'ouest jusque dans la vallée de la rivière aux Rosiers où elle atteignait le lac Epinette-Rouge. Dans cette mer intérieure se déposait la plaine des lacs Mignault. Dans les vallées des rivières aux Outardes et Manicouagan, la mer montait pour des distances de plusieurs dizaines de milles ; à leur embouchure fut déposé ce que l'on appelle la presqu'île de Manicouagan, une plaine diluvienne d'une surface d'environ 50 milles carrés qui pourrait à elle-seule, si elle était rationnellement drainée et cultivée nourrir la population de plusieurs paroisses.

En aval de Manicouagan, la mer Champlain était tenue en échec par les hautes falaises qui y bordent la vallée du St-Laurent et elle suivait la ligne générale du littoral actuel : c'est seulement dans les vallées des rivières qu'elle envoyait des émissaires plus au moins loin dans l'intérieur des terres, comme par exemple à Godbout, où elle inondait et donnait naissance à la plaine de la baie de Godbout et remontait la vallée de la rivière pour une distance d'environ 20 milles. A partir de la Pointe-de-Monts cependant, 35 milles en aval de Manicouagan, le littoral de la mer Champlain se trouvait de nouveau déplacé sur les terres actuelles ; elle inondait une bande large de 2 à 4 milles de la côte nord actuelle entre Pointe-de-Monts et Matamec, une distance de plus de 100 milles. Cette bande est surtout sablonneuse de la Pointe-de-Monts à Baie-Trinité, ensuite glaiseuse de là à la Baie des Homards près de Pentecôte et constitue ensuite un terrain extrêmement marécageux avec d'innombrables lacs et des tourbières à peine asséchées. La plaine s'élargit considérablement aux embouchures des grandes rivières telles que la Pentecôte, la rivière aux Rochers, la Ste-Marguerite et la Moisie ; entre Sept-Iles et Moisie elle forme une immense

plaine, glaiseuse, sablonneuse et marécageuse d'une surface de plus de 100 milles carrés qui possède de grandes possibilités agricoles. Toute cette bande de terrains Champlain constitue une unité géographique très distincte que l'on peut nommer la plaine des Caouis, nom tiré de l'archipel qui est placé à mi-chemin environ entre la Pointe-de-Monts et Matamec, à 9 milles en aval de Moisie.

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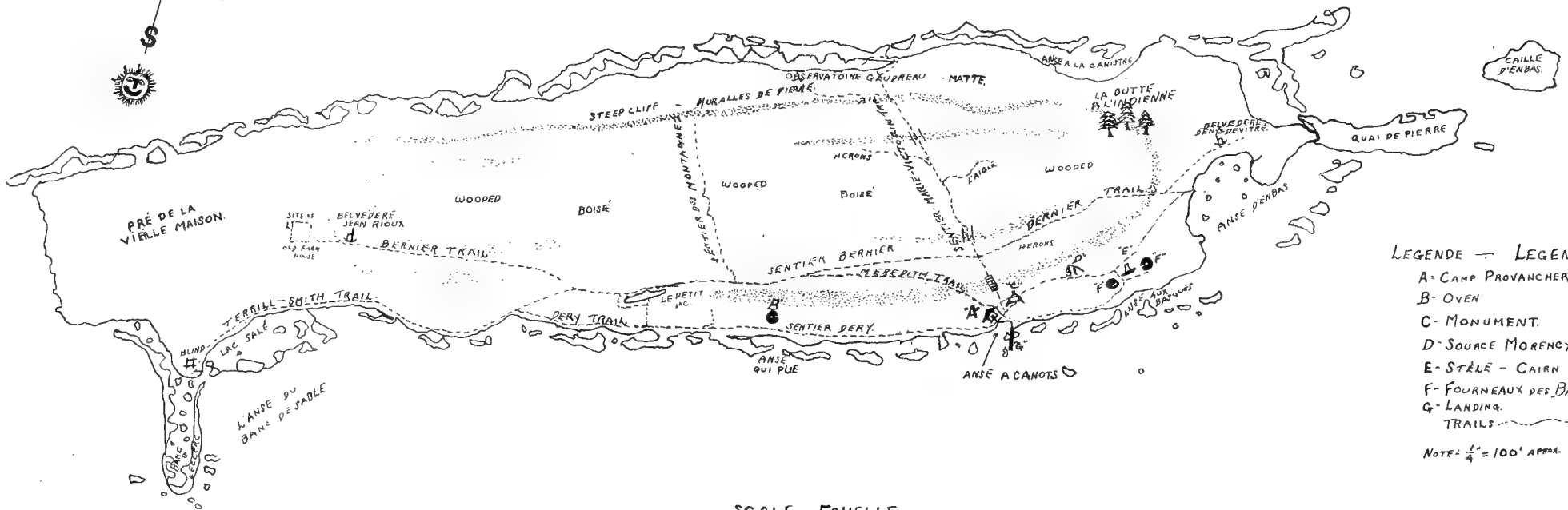
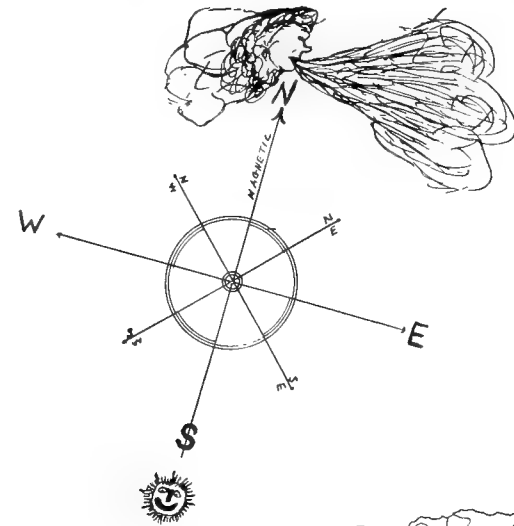
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Ile aux Basques.

MAP
SHOWING TRAILS AND
POINTS OF INTEREST.

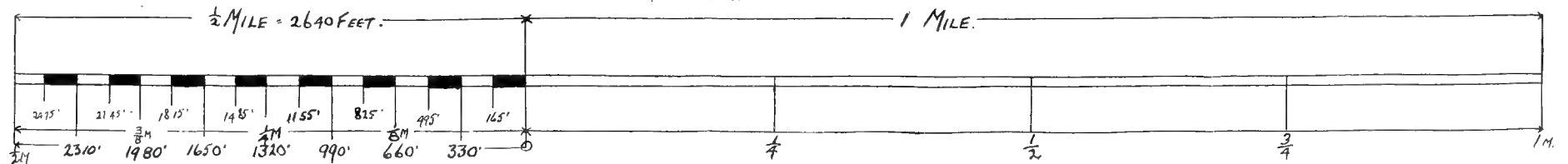
ILE AUX BASQUES IS THE PROPERTY OF THE PROVANCHER SOCIETY, AND
FORMS PART OF THEIR BIRD SANCTUARY. THIS SANCTUARY CONSISTS OF
BASQUE REEF, LA RAZADE D'EN HAUT AND LA RAZADE D'EN BAS AS
WELL AS THIS ISLAND.

CARTE
MONTRANT LES SENTIERS
ET LES POINTS INTÉRESSANTS.



LEGENDE — LEGEND
A - CAMP PROVANCHER.
B - OVEN
C - MONUMENT.
D - SOURCE MORENCY
E - STÈLE - CAIRN
F - FOURNEAUX DES BASQUES
G - LANDING.
TRAILS
NOTE: $\frac{1}{4}$ " = 100' APPROX.

SCALE = ECHELLE.



PREPARED BY T. J. HAINIER.

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The Arctic Tern

by *Carl W. Buchheister*

Vice-President

National Audubon Society

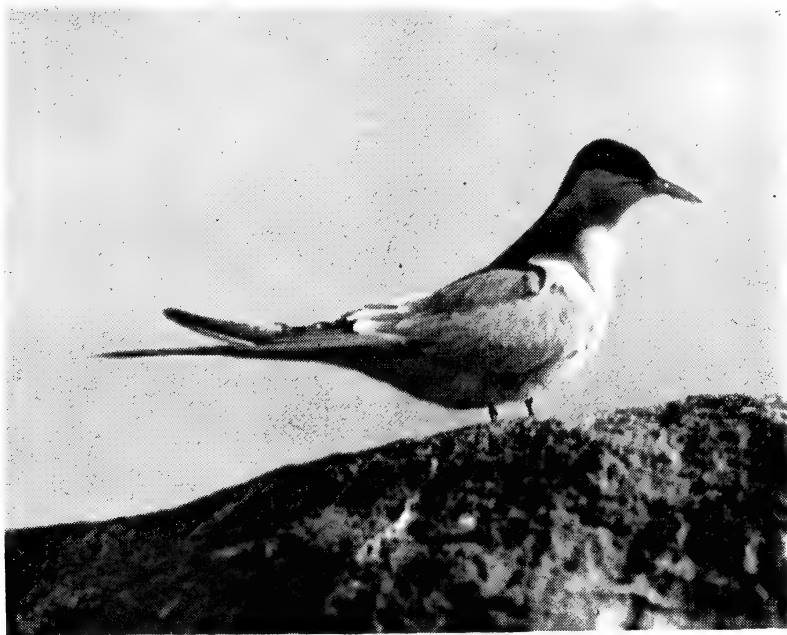


Photo ALLAN D. CRUICKSHANK, from NAS.

Sterna paradisaea

One July day last summer I was with my friend and colleague Mr. Allan D. Cruickshank, on the Eastern Egg Rocks, famed oceanic bird island off the coast of Maine. We were leading an expedition of students of the Audubon Nature Camp of Maine to observe the great breeding colonies of Herring and Black-backed gulls and other sea birds. Mr. Cruickshank, head bird instructor of the

Audubon Camp, related a story which filled us with wonder and fired our imaginations. It was that on the very oceanic roc where we were gathered a bird bander had placed the numbered aluminum band of the U. S. Fish and Wildlife Service on the leg of an Arctic tern chick. The tiny fellow was only several days old and still covered with natal down. The date was July 3, 1913.

Four years later, in late August of 1917, that same bird was found dead by a native on the Niger River Delta in West Africa — far across the Atlantic Ocean and way down south on the continent of Africa! Then, looking out on that vast and trackless ocean, one wondered how and why it traveled so great a distance.

Fourteen years later in 1927, and far to the North of Maine, in Turnevick Bay, Labrador, another bird bander, Dr Oliver Austin, banded a downy chick of an Arctic tern. The exact date was June 22. On the first of October, that bird was found dead in France near La Rochelle, only three months later and over 3000 miles across the ocean. Let us take still another record. An Arctic tern chick, banded by the Dr Austin at the same island in Labrador on July 23, 1928, was discovered not quite four months later on the beach at Margate, Natal, South Africa. Two remarkable and certainly significant records! Both birds were banded almost at birth in Labrador. One was found three months later in France; the other, four months later in South Africa — Labrador to Europe and Labrador to South Africa — and, in the case of our Eastern Egg Rock bird, Maine to West Africa. These records have their real and exciting significance as we shall see later.

Breeding range :

The breeding range of the Arctic tern is circumpolar and it has been found nesting as far north as land exists. One nest was found only seven-and-half degrees from the North Pole. It held a downy young and was surrounded by snow. In North America this tern is found breeding from the Arctic, including Alaska, south to British Columbia, Great Slave Lake; on the entire salt water coastline of the Province of Quebec; and south to the coasts of Maine and Massachusetts. To date, there is no nesting record

south of Massachusetts. In other parts of the world the range includes Arctic Asia, Iceland, Northern Europe, Ireland and Scotland. It is found mostly on maritime islands, but in some areas it nests in the interior.

Migration :

The migration of this bird is truly amazing. For, as the first banding records reveal, it is found thousands of miles from its birth place. Let us consider the migration of the Arctic terns that summer on the coasts of Massachusetts and Maine. One would suppose that since the southern part of the globe is their eventual destination, they would head due south. Instead they travel northerly and easterly up the coast of Newfoundland, to Labrador, and then right across the Atlantic Ocean to Europe; then down the coast of Europe, and down the coast of Africa to, and even below the Antarctic Circle.

This extraordinary one way migration journey is estimated to be 11,000 miles! According to all available knowledge, this is considered the longest migration route of any bird.

The mileage actually flown in this annual trek certainly exceeds 11,000 miles. For, in characteristic fashion of terns, they do not fly in a straight, bee-line flight, but pursue the direction of their route with constant and leisurely circling and zig-zagging. In consideration of the mileage thus covered there is small wonder that it is often called, « the long distance champion of migratory birds ».

Until just a few years ago, the migration route of the Arctic tern was a complete mystery. Now it has been established with virtual certainty, partly through the invaluable aid of bird banding, and partly through a most interesting sight observation that occurred in 1927. On August 26 of that year, the Harvard University oceanographic schooner, Atlantis, some 400 miles west of Ireland, while westward bound towards the American coast, suddenly came upon great numbers of Arctic terns. For four days thereafter the vessel continued to encounter small flocks of these terns all flying eastward towards Europe. Thus was discovered a transatlantic fall migration of this species actually in progress. Now we realize

the significance of the earlier discovery of those three banded Arctic terns that were found in France and South Africa.

Since the Arctic terns occur regularly on the west coasts of Canada, United States and South America, it is thought that the terns breeding in Alaska migrate directly south to the Antarctic to winter. They, therefore, do not have a long « side trip » before heading south, as is the case with those breeding on the northeast coast.

As our terns of eastern Canada and New England make their way across the Atlantic Ocean they fly in small flocks. They seldom stop their flight to rest and when they do they light only on pieces of flotsam or jetsam. To what extent they feed on the long migration route is really unknown. Apparently, there are very few observations of their behavior on migrations. Like the petrels and other sea birds, the terns are endowed with an extraordinary and still unexplainable ability of reaching their destinations over vast areas of water without a land mark to guide them.

South of Canada, on the east coast, the Arctic terns are found breeding chiefly in Maine and invariably on islands. For many years one of the largest colonies has existed on Matinicus Rock, a small oceanic island about 25 miles out to sea from Rockland. In some years the nesting population there has been estimated at 2000 pairs. There are few such colonies elsewhere in New England. In fact, in Massachusetts, where their breeding range ends, there are today only several very small colonies. Numerous and large colonies must surely exist in the vast maritime areas of the Province of Quebec.

In addition to the Arctic terns in our northeast, the Common tern occurs also. These two species, which exist so frequently in the same areas, are strikingly alike in appearance. So remarkable is this similarity that only an expert can distinguish the two in the field with certainty. At very close range and under excellent light conditions, a good field mark is the bill. In the case of the Arctic tern, the bill is usually a deep blood red and without the black tip; the bill of the Common tern is more scarlet or orange-red and invariably has a black tip. To add to our difficulties in sight identification, exceptional Arctic terns show a little black on the tip in

the breeding season. If the two species should be observed standing side by side, one might distinguish the Arctic by its shorter tarsi. Therefore, it stands lower to the ground. At only very close range and with aid of good light can one discern the definitely grey color of the underparts of the Arctic. Those of the Common tern are white.

Arctic terns nest in colonies on rocky islands, sandy areas and brassy banks. Sometimes Common terns are found nesting in close association with them. They scratch out a shallow in the sand or pebbles. Frequently, nests are placed right on the bare rock without any lining whatsoever. In many cases the nests are lined with grasses and pieces of shell. The nests are invariably placed in the open without the protective cover of vegetation.

The usual clutch of eggs is 2, but frequently they lay 3. The ground color varies from stone color to pale blue, or light to dark brown. They are blotched and spotted with rich dark brown and ashy shell marks. There is considerable variation in color.

The Arctic terns have but one brood a year. The incubation period is 21 to 22 days and both sexes share in this duty. It is said that the female broods only at night.

The young birds take to the wings when they are about three weeks old. The parents, however, continue to feed them for several weeks longer.

Isolation is essential for the success of a tern colony. Consequently, lack of isolation in certain regions, especially in New England, is a factor of considerable importance in limiting the local populations of the Arctic tern.

Fortunately, this factor does not prevail in the Arctic regions.

This isolation is best provided by islands. Colonies situated on the mainland shores are subject to predation by raccoons, skunks, foxes, weasels, dogs, cats and rats. Also on the mainland, visitations by humans results in considerable mortality.

Of all the mammal predators the common rat is the most destructive. I recall visiting an island in Muscongus Bay, Maine, which had the very best of natural advantages for successful breeding colonies of terns, including isolation. An inspection of the island

revealed a tragic story. In almost every one of the hundreds of nests of terns and of a newly established Laughing Gull colony, the eggs and young had been eaten by rats. The precious isolation of this island had been destroyed by man who, through a former habitation, had caused rats to be introduced. Long after the small human population had abandoned the island, the rats continued to thrive. They had easily adjusted themselves to a diet of marine organisms and seeds which was supplemented in summer by the eggs and young of birds.

In the Muscongus Bay region of Maine, where our Audubon Nature Camp is situated, we have noticed a decrease in the nesting colonies of both Arctic and Common terns. This same decrease is occurring elsewhere in Maine. We have very good evidence that this diminution is due to the constantly increasing numbers of Herring and Black-backed gulls which are preempting many of the available nesting areas.

Apparently, the terns cannot breed successfully on the same island in close proximity to the nests of the Herring gull. The presence of the gulls flying or even standing near the nests of the terns is enough to disturb them. They become so excited that sustained incubation of the eggs is prevented and even the normal feeding and care of the young is hampered.

The food of the Arctic tern consists chiefly of small fish, which they catch by diving from the air. Often a dive will submerge the bird completely. A beautiful and magnificent sight is presented by a large flock of terns flying about and constantly diving into a school of fish. Their presence on such occasions is an infallible sign to fishermen of the presence of schools of fish. Perhaps that has given rise to the name, « *Mackerel Gull* » which the terns are called by many New England fishermen.

The Arctic tern will also eat caterpillars and insects which it finds in the nesting areas.

Thirty years ago the Arctic, as well as the Common terns of New England, were seriously reduced in numbers. For years they had been killed for their tails and wings which were used in the millinery trade. Thus they were the hapless victims of a greedy

commercialization. Tens of thousands were killed in a single year on their New England breeding grounds as they were in the very act of reproducing themselves. In addition, their eggs were taken by man for food. This practice still continues in the Arctic regions.

Now, however, since the passage of protective legislation in Canada and the United States, the enforcement of which has been aided by development of conservation attitudes, the terns are regaining their former abundance.

The danger in the future will not be so great from human exploitation of the terns themselves, but rather from the constant encroachment of civilization on the coastal islands. It is, therefore, a challenge to the Provancher Society of Natural History and other conservation organizations to provide inviolate sanctuaries where the Arctic terns and other sea birds may nest with perfect security.



Eider Duck Nest

Photo Napier Smith

Liste des insectes

Récoltés par MM. Joseph Duncan, Paul E. Mercier et Roger Garneau
les 25-26 Juin 1947 à
l'Ile aux Basques, l'Ile Razade Nord, l'Ile Razade Sud
(Témiscouata), Qué.

DEUXIÈME RAPPORT

Trois membres du personnel du Bureau provincial de la Protection des Plantes sont retournés à l'Ile aux Basques à la fin de Juin l'année dernière, afin de continuer le relevé de la faune entomologique de ces islets.

La pluie a compromis passablement le travail des collectionneurs. Les nuits froides diminuèrent de beaucoup l'efficacité du piège lumineux pour la collection des insectes nocturnes, car ceux-ci montrèrent une grande inertie causée par cette basse température.

Les quelques heures de belle température durant la deuxième journée ont permis aux entomologistes de parcourir rapidement tous les endroits découverts de ces trois islets. Les spécialistes de l'extérieur ne nous ont pas encore transmis leurs identifications et pour cette raison, nous ne vous soumettons que les insectes compris dans les ordres des Lépidoptères et des Coléoptères.

Nous profitons de l'occasion pour remercier MM. J. Baulne et Paul Mercier pour l'identification des insectes mentionnés dans cette liste.

LÉPIDOPTERES

- SPHINGIDAE: *Smerinthus cerisyi* Kby.
- ARCTIIDAE: *Estigmene prima* Slosson.
 Hyphantria cunea Dru.
- PHALAEINIDAE: *Autographa falcifera* Kby.
 " *brassicae* Riley.

Lithomoia solidaginis Hbn.
Laphygma frugiperda A & S.
Caenurgina crassiuscula Haw.
Xylomyges dolosa Grt
Raphia frater Grt.
Protoleucania albilinea Hbn.
Rusina bicolorago Gn.

NOTODONTIDAE: *Gluphisia lintneri* Grt.
Ichthyura Albosigma Fitch.
Ichthyura strigosa Grt.

LASIOCAMPIDAE: *Epicnaptera americana* Harr.

GEOMETRIDAE: *Earophila vasilata* Gn.
Metarranthis duaria Gn.
Triphosa haesitata Gn.
Nyctobia anguilineata G & R.
Melanolophia signataria Wlk.
Ectropis crepuscularia Schiff.
Tetraxis crocallata Gn.

COLÉOPTERES

CARABIDAE: *Pterostichus punctatissimus* Rand.

HYDROPHILIDAE: *Paracymus subcupreus* Say.
Anacaena limbata Fabr.
Cercyon analis Payson.

STAPHYLINIDAE: *Anthobium convexum* Fauv.
Oxytelus rugosus Fabr.

DERMESTIDAE: *Attagenus piceus* Oliv.

LAMPYRIDAE: *Pyractomena angulata* Say.

MELYRIDAE: *Collops tricolor* Say.

ELATERIDAE:

Ludius cruciatus L.
Dalopius vagus Brown.

CHRYSMELIDAE:

Calligrapha alni Schffr.
Pachybrachys paccans Suff.
Galerucella vaccinii Fall.
" *nymphaea* L.
Phyllodecta americana Schffr.
Haltica corni Woods.
Chalcoides fulvicornis Fabr.
Calligrapha bigsbyana Kby.

CURCULIONIDAE:

Sitona tibialis Hbst.
Orchestes ephippiatus Say.
Centornhychus sulcipennis Lec.
" *marginatus* Payk.

L'énumération des espèces mentionnées dans le rapport précédent de la société ainsi que cette liste ci-dessus révèle la richesse de la faune entomologique de cette petite région.

Il faut se rappeler que plusieurs autres espèces ont été récoltées et n'ayant pas encore été identifiées ne sont pas mentionnées dans cette étude. En plus, des captures effectuées à deux dates différentes seulement ne représentent que d'une manière partielle les insectes adultes à cette époque de l'année. Ainsi deux autres récoltes, l'une au moment de la couvaison des canards et l'autre à l'époque de la chute des feuilles, donneraient une idée plus fidèle de la population des insectes dans ce sanctuaire.

Les membres de cette excursion sont heureux de remercier le secrétaire de la Société de son chaleureux accueil, et de même signalent la grande bienveillance du gardien qui prit tous les moyens pour rendre notre séjour des plus agréables.

QUÉBEC, le 12 février 1948.

Taverner, the Naturalist *

by Stuart L. Thompson

* — *Editor's notes.* — This article was published in *The Carling Conservation Digest*, of October 1947. We hereby offer our sincere thanks to the executive officers of *The Carling Conservation Club* and to the author Mr Stuart L. Thompson, for their kind authorization to reprint and to translate into French.

Taverner had a great number of friends in Quebec and his *Birds of Eastern Canada*, together with his booklet *Bird houses and their occupants* both printed in French, are to be found everywhere. The Provancher Society distributed thousands of the booklet on bird houses to school boys, teachers and institutions throughout the province. This latter publication was printed in Ottawa by the National Parks Bureau.

It must be noted that Taverner was one of the pioneers of bird-banding and it seems that credit should be given to him for the idea of organizing a central office for issuing bands and keeping records. (See *The Auk*, January 1948).

His ornithological publications number about 300 and he also contributed illustrations and drawings. During his last years he was working on a *Manual of Water Birds and Game Birds*.

We are pleased to mention here that Taverner's whole ornithological library was purchased by the Quebec Government for the Provincial Museum on Battlefields Park, Quebec City. This library includes practically all publications and magazines on Ornithology, and particularly a complete set of *The Auk*, published by the American Ornithologists' Union. Our government certainly deserves congratulations for this excellent acquisition.

P. A. Taverner was born at Guelph, Ontario, 72 years ago. Like many other men who have left their mark in their own field very early in life he showed talent for natural history. Unfortunately, for a boy of such tastes he was destined to know very little of the place of his real boyhood, nor indeed any other place of residence, for much of the formative period of his life was spent travelling. His parents were engaged in a theatrical career, and later in life Mr. Taverner was known to say that he seldom went any place in Canada or the United States without having a vague recollection of having been there before. At length the family settled down

for some time in Ann Arbor, Michigan, and here in this cultural centre the boy-naturalist had the opportunity of becoming acquainted with persons in the museum who could be of real help to him. He was allowed to make use of the laboratory of the museum for his efforts in taxidermy.

By profession Taverner was an architect, beginning his career in Port Huron. Later he practised in Detroit and Chicago where there are many buildings which he designed. As is the case with men who have an absorbing hobby apart from business, he continued his studies of bird life during all his spare time, writing notes, articles and collecting specimens. Such zeal cannot fail to attract notice eventually, and in the course of time his work came to the attention of prominent naturalists who were influential in having him appointed as Dominion Ornithologist and curator of the National Museum at Ottawa. In this capacity Taverner found himself able to set aside his professional work as an architect and devote himself entirely to his chosen life-work, the study of Canadian bird life.

As time went by he became internationally recognized as a leading ornithologist and was honored by fellowships in such important bodies as the Royal Society of Canada, the American Ornithologists' Union and by being made an Imperial member of the British Ornithological Union. No higher awards can come to any naturalist.

Fame did not lessen the zeal of such a student. In spite of his duties as museum curator Taverner found time to travel widely. He made several trips to Western Canada in connection with his studies of bird life. On more than one occasion he visited the coast of Labrador, and spent one season in the Canadian Arctic. He journeyed repeatedly to that famous bird sanctuary Percé Rock in the Gaspé district, photographing and studying the innumerable forms of sea-fowl which nest there.

Such journeys and data thus accumulated are sure to form the basis for work of a lasting nature in the hands of a serious student. In 1921 Mr. Taverner published a splendid volume entitled « *Birds of Eastern Canada* ». So popular was this book that two editions were printed in French as well as in English. To his satisfaction he was given *carte blanche* by his department to publish a second book on the birds of Western Canada. Later these two works

were combined under the title « *Birds of Canada* ». When one considers how vast our country is and what varied forms of bird life are to be found in its many habitats and regions, such a book was indeed a great undertaking. It is undoubtedly the most complete book published to date on Canadian bird life. As one reviewer describes it, « It is a departure from the conventional type of report to one embracing in addition the esthetic and cultural features for the enjoyment of the average citizen.»

Though essentially a naturalist Taverner was a very accomplished man. He was a fine artist and skillful photographer, a gifted writer and a careful, painstaking scientist, a man of refined esthetic tastes and a good craftsman. An incident is told of his showing a friend a photograph of the house he was « going to build.» « But how did you get these photos before you have built the house ? » asked the friend. « Oh », said Taverner, « that's a model I made to scale which I photographed.» So finished was the miniature that it appeared to be the real house. The craft of book-binding attracted him, so he put it to use by binding all his scientific periodicals for his library.

Once while looking at his splendid work at the National Museum, I asked, « How do you explain the thrushes for the most part laying clear blue unspotted eggs with the exception of the olive-backed thrush which lays a spotted egg ? » His answer was that of a careful naturalist, « I don't explain it, » he replied, « I merely note the fact.»

Nor shall I forget the way he solved the problem of dealing with the sparrows when they persisted in nesting in his martin box. « A dead sparrow makes no nest. Of that I am assured, and so I act accordingly.»

Though never a robust man and denied life insurance because of his fragile constitution, he nevertheless survived all the so called « privations of a naturalist's life » and lived to do useful work and to be helpful to others who loved nature, up to the time of his death at his home in Ottawa on May 8th, 1947.

With many men their works die with them. Mr. Taverner's name will always live not only in his many writings and his books which hold such a place in science, but in the inspiration which he himself was to many a younger naturalist with his deep and sympathetic interest in the bird life of Canada.



Photo Ottawa Field-Naturalists' Club

P. Q. Tavernier.

Taverner, le Naturaliste *

par Stuart L. Thompson

* — *Notes des éditeurs.* — L'article dont nous donnons ici la traduction a paru dans le numéro d'octobre 1947 du *Carling Conservation Digest*. Nous désirons exprimer notre vive gratitude au bureau de direction de *The Carling Conservation Club*, de Waterloo, Ontario, et à l'auteur, M. Stuart L. Thompson, pour nous en avoir gracieusement permis la reproduction et la traduction. (Traduction de G. A. Leclerc).

Taverner était bien connu dans le Québec et son premier volume: *les Oiseaux de l'Est du Canada*, ainsi que sa plaquette: *Maisons d'oiseaux et leurs habitants*, sont très répandus. La Société Provancher a distribué par milliers la plaquette sur les maisonnettes d'oiseaux et cela aux écoliers, institutrices et institutions de tous les coins de la province. Cette publication a été imprimée à Ottawa et est distribuée gratuitement par le Service des Parcs Nationaux.

Il est bon de remarquer que Taverner a été l'un des pionniers du baguage des oiseaux et c'est à lui qu'on doit l'idée d'un bureau central pour la distribution des bagues et l'inscription des retours. (Voir *The Auk*, Janvier 1948).

Ses écrits sur l'ornithologie sont au nombre d'environ 300 et il a aussi fourni des illustrations et des dessins. Pendant les dernières années de sa vie il travailla à mettre au point un volume sur les oiseaux de mer et le gibier.

Il nous est particulièrement agréable de mentionner que le gouvernement du Québec s'est porté acquéreur de la bibliothèque ornithologique de Taverner pour le Musée de la province, à Québec. Elle comprend presque toutes les publications et revues sur l'ornithologie et, entre autres, la collection complète de la revue *The Auk* publiée par l'Union des Ornithologistes d'Amérique (A.O.U.). C'est là un bon emploi des deniers publics et le gouvernement doit être félicité de cette excellente acquisition.

P. A. Taverner naquit à Guelph, Ontario, il y a 72 ans. Comme beaucoup d'autres qui ont fait leur marque dans leur sphère d'activité c'est dès son bas âge qu'il montra des dispositions pour l'histoire naturelle. Malheureusement il n'était pas destiné à devenir bien familier avec les lieux de son enfance, car il voyagea continuellement pendant la première partie de sa vie. Ses parents faisaient du théâtre et Taverner, devenu homme, avait l'habitude de

dire en arrivant dans une localité du Canada ou des États-Unis qu'il se rappelait vaguement y être déjà venu.

Sa famille put enfin s'installer en permanence à Ann Harbor, Michigan, et dans ce centre culturel le jeune naturaliste eut l'avantage de rencontrer des membres du musée qui se firent un devoir de lui venir en aide. On lui donna libre accès au laboratoire et c'est là qu'il fit ses premières armes comme taxidermiste.

Taverner adopta la profession d'architecte et commença sa carrière à Port Huron. Il pratiqua plus tard à Détroit et à Chicago où se trouvent encore plusieurs édifices dont il avait fait les plans. En dehors des heures de bureau le passe-temps qui absorbait tous ses moments de loisir restait toujours l'histoire naturelle et surtout l'ornithologie. Il notait ses observations, rédigeait des articles et collectionnait des spécimens. Ses travaux attirèrent l'attention de naturalistes reconnus qui parvinrent à le faire nommer ornithologiste du Dominion du Canada et conservateur du Musée National à Ottawa. Taverner fut dès lors en position d'abandonner sa profession d'architecte et de consacrer tous ses instants à son travail préféré, l'étude des oiseaux du Canada.

Ses travaux le firent bientôt reconnaître comme un ornithologiste de marque; il fut appelé à faire partie de la Société Royale du Canada, de l'Union des Ornithologistes d'Amérique et il fut nommé « *Imperial Member* » de la British Ornithological Union. C'était la reconnaissance officielle de ses capacités.

La renommée fut loin d'amoinrir son zèle pour l'étude et en dépit de ses fonctions au Musée National il trouva le temps de parcourir notre pays dans toutes les directions, toujours à la recherche de constatations et d'observations sur la vie des oiseaux. Il visita l'ouest et le Labrador à plusieurs reprises et passa une saison complète dans l'Arctique canadien. Le rocher Percé, dans la Gaspésie, fut plusieurs fois l'objet de ses pérégrinations et il en rapporta d'innombrables photos et notes sur les nombreuses espèces qui s'y trouvent.

Chez un observateur sérieux l'accumulation de notes et de renseignements conduit à la préparation d'un ouvrage et c'est en 1921 que Taverner publia son magnifique volume: *Birds of Eastern Canada*. Une seconde édition suivit immédiatement et il y eut aussi une édition en français: *Les oiseaux de l'Est du Canada*. Un

second volume: *Birds of Western Canada* parut peu après et les deux furent réunis sous le titre: *Birds of Canada*, qui fut aussi imprimé en français. Il faut admettre que c'était une réussite d'envergure quand on considère l'étendue de notre pays et les multiples espèces qui y sont distribuées dans les différentes régions. C'est encore le travail le plus complet qui ait été publié sur les oiseaux du Canada. Un critique en a dit que le volume s'éloignait de la formule traditionnelle en ce qu'il présentait au grand public les aspects culturels et esthétiques avec les données scientifiques.

Naturaliste par goût et par vocation, Taverner avait des dispositions remarquables dans d'autres domaines. Artiste, habile photographe, écrivain doué, chercheur infatigable, il avait des goûts raffinés et une habileté naturelle dans tous les petits travaux. On mentionne qu'il montra un jour à un ami une photographie de la maison qu'il voulait se construire. L'ami lui demanda comment il avait pu obtenir la photo d'une maison qui n'était pas encore debout. « Oh, c'est bien simple », répondit Taverner; « j'ai fait un modèle à l'échelle et l'ai photographié ». La miniature était tellement parfaite dans tous les détails qu'on se serait cru en face de la maison réelle. L'art de la reliure avait pour lui des attraites comme en témoignent toutes ses publications scientifiques reliées de sa main.

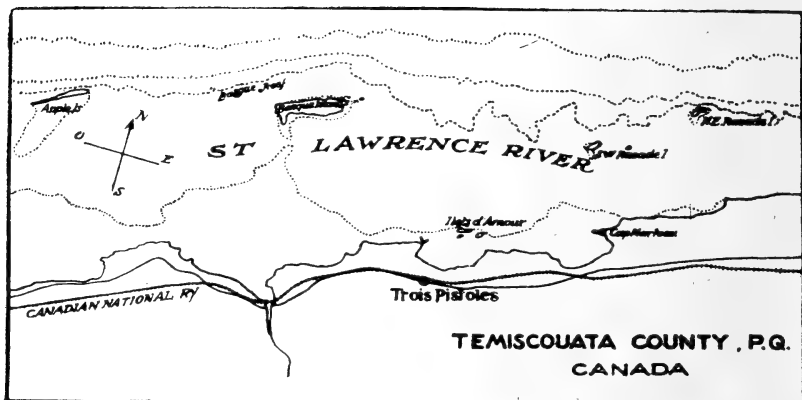
Un jour que j'admirais le résultat de son travail au Musée je lui demandai: « Comment expliquez-vous le fait que la plupart des grives pondent des œufs d'un bleu clair sans aucune tache alors que ceux de la grive de Swainson sont tachés? ». En naturaliste véritable il répondit: « Je ne l'explique pas. Je le constate ».

Je n'oublierai jamais sa manière de résoudre le problème des moineaux qui persistaient à occuper la maisonnette qu'il avait préparée pour les hirondelles pourprées. « Un moineau mort ne fait pas de nid. C'est un fait établi et j'en tiens compte ».

Il n'était pas robuste physiquement mais, malgré sa constitution fragile, il surmonta les fatigues et les privations des voyages et des explorations et poursuivit ses travaux jusqu'à ses derniers jours. Il mourut à sa résidence d'Ottawa le 8 mai 1947.

Peu nombreux sont ceux dont les œuvres survivent. Le nom de Taverner vivra non seulement dans ses écrits qui tiennent une place importante dans les annales de la science; tous les jeunes naturalistes qu'il a aidés et inspirés gardent un souvenir vivace et vénéré de son intérêt constant à l'avifaune du Canada.

The History of Basque Island
and the two Razades *--
Bird sanctuaries of the Provancher
Society of Natural History of Canada.



No history is more interesting than that of the islands of the St-Lawrence River. In a way, these islands were the first witnesses of the coming of the hardy men who sailed « *the great flowing road* », the St-Lawrence, in their caravels, galleons, corvettes, barks and brigantines.

Unfortunately, very few of our citizens are familiar with these landmarks of our history. They are many, some lying close to our cities, yet only the largest are known. All along the river there is not a single county on the north or south shore which does not boast its island or group of islets as an added attraction.

Between the Isle of Orleans and l'Île aux Coudres there are exactly twenty-one, all mentioned by Admiral Bayfield. Then, as you go east, you meet the islands of Kamouraska, the Brandy-Pot, Île Blanche, the Pilgrims and l'Île aux Lièvres. Further down the river in the vicinity of Trois-Pistoles, one finds l'Île Verte, l'Île aux Pommes, l'Île aux Basques and the Razades.

* This is a revision and translation by Claire and Geo.-A. Léclerc of the French text published in 1940.

Upon leaving the Ilets Saint-Jehan-(Bic) during his second voyage, in 1535-36, Jacques Cartier writes in his *«relations»*, (Biggar, chief Federal Archivist in Europe) : «Nous appareillâmes dudit hable le premier de septembre pour aller vers le Canada; et environ quinze lieues dudit hable, a l'ouaist-suouaist, il y a trois fles au parmi dudit fleuve, le travers desquelles il y a une rivière très pro-



L'HALLALI D'UNE BALEINE

(Dessin de RIPART, d'après la gravure de THÉVET, 1575).

fonde et courante qui est le chemin du Royaume et Terre du Saguenay ». From this simple description it is easy to recognize l'Ile aux Basques, l'Ile aux Pommes and l'Ile Verte, all three facing the mouth of the Saguenay.

In that French-Canadian section so rich in tradition and folklore is located the property of the Provancher Society of Natural History of Canada, which has bird colonies on Basque Island and the two Razades Islands, opposite Trois-Pistoles, P. Q. Basque

Island probably contains the oldest remnant of history in Canada, as proved by the ovens built there by Basque fishermen before the coming of Jacques Cartier and restored by the Provancher Society. The Society's aim in acquiring the islands was not merely to create bird sanctuaries thereon but also to provide a rendez-vous of historical interest.

Apart from these attractions, relics of eras long passed, apart from the fascinating spectacle of the goings and comings of the winged «protégés» of the Society, one marvels at the splendour of the scenery and the phenomenon of the «mirage» which has astonished and enchanted all those fortunate enough to witness it.

Our islands have a history which can be told and should be better known. The Provancher Society is therefore proud to introduce to its members and the public at large its interesting domain: Basque Island and the two Razades.

L'ILE-AUX-BASQUES

Of the islands which constitute the Sanctuary at Trois-Pistoles, Basque Island was the first to attract the attention of the directors



Basque Island

Photo Dr. L. L. Robbins

and it has always been the object of particular care and solicitude. « Midst thousands of flapping wings, coos and calls, one perceives the call of history and legend ».

Its history goes back to the early stage of the Laurentian colony. It was first called « Ile de la Guerre » (War Island) by Alphonse St-Onge, Royal Pilot during the reign of François I. Its outline appears for the first time on the map of North America published by Volland in 1547, on the « Planistère de Descelliers » in 1550, on Mercador's map in 1569, and lastly on a map drawn by Samuel de Champlain himself, « capitaine pour le roy et la marine », in 1632. On the map of « La Nouvelle-France » by S. Belin, Hydrographer-Engineer for the Navy during the Maurepas Ministry, l'Ile-aux-Basques and l'Ile-aux-Pommes are so called for the first time and correctly placed. Here then is one small river island which from an early date attracted the attention of chart makers and discoverers ; Jacques Cartier mentions it in his reports.

Let us remind the reader that it was first called Ile de la Guerre because, as related by Donnacona himself to Jacques Cartier, Donnacona's Indians were massacred there by Toudamens, of the Etchemin tribe settled on the south shore (according to Lighthall). How it acquired the name of Ile-aux-Basques is easily explained. Before Jacques Cartier and also in Champlain's time, the Basques used to come up the St-Lawrence, whale hunting, and it was on that island that they extracted the oil from whales caught near the mouth of the Saguenay River. According to historical data, these Basques annoyed the Founder of Quebec so much that, with the cooperation of « La Compagnie de Montmorency », he commissioned Raymond de la Ralde to drive them away.

If today none of the « costes de baleines » are to be found, one can still see three of the stone ovens built by the Basques and restored by the Provancher Society. One of the three would apparently be exactly as erected by the first users. They are all of circular shape, with an opening on one side ; the largest has an exterior diameter of 9 feet and measures 5 feet inside, which means that the walls are 2 feet thick ; it is about $3\frac{1}{2}$ feet in height and it is thought that it was never any higher. The other two are some-

what smaller. They are all on the south side of the island, which is the sheltered side ; two are near the east end and the third is toward the west end, about one hundred feet inland.



These try-ovens give the island its great historical value. It has been so recognized by the Quebec Commission of Historical Monuments which placed on the highway to Trois-Pistoles a sign reading as follows : « On Basque Island can be seen the remains of ovens erected by the Basques ; Father Nouvel and his Papina-chois neophytes took refuge on the island to protect themselves from the Iroquois ».

Basque Island is $1\frac{1}{4}$ miles long, 400 yards wide and its highest point of elevation is 130 feet. It lies off Trois-Pistoles and, to quote Father Henri Nouvel, S.J. in «La relation des Jésuites » of 1664, « elle n'est éloignée que de trois lieues ». It was purchased by the Provancher Society on June 24, 1929, from Mr S. C. Riou, a lawyer in Rivière-du-Loup. Even before buying it, the directors had proposed to restore the famous try-ovens of which important remains were still to be seen. They wished to maintain the island in its natural state because of its historical value and its obvious

possibilities as a bird sanctuary. In fact this well wooded island has always intrigued naturalists on account of its bird life.

The directors had also planned to erect a monument to the memory of the French missionaries who evangelized that part of the St-Lawrence nearly three hundred years ago, particularly Father Henri Nouvel who spent many years of his fruitful life in the region. The project became a reality in 1938 when three directors of the Society, Dr Gustave Ratté, Dr D. A. Déry and Mr Rex Meredith, N.P., evolved an embellishment program whose execution was entrusted to Mr Héliodore Laberge, a well-known Quebec architect and a life member of the Society. Thanks to a special grant obtained through Dr Albiny Paquette, then Provincial Secretary, the said plan was duly carried out and it recalls not only the memory of those devoted missionaries but also that of the first Basques who crossed the ocean to capture whales in that vicinity.

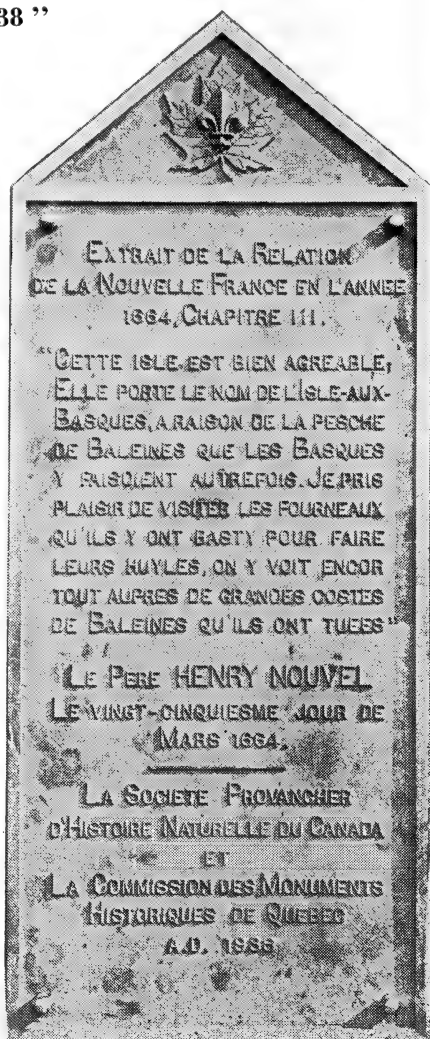
A small terrace was built of stone found on the island. On one side stands an open fire-place topped by a chimney, 15 feet high, also made of island stone. At its base there is a kind of hemicycle with a rustic bench where visitors can rest and commune with na-



ture. A bronze plaque dedicated to the memory of Father Nouvel, his companion Charles Amyot, and the Basque fishermen, set in the stone of the chimney bears the following inscription :

- « Au Père Henri Nouvel, jésuite, et à son compagnon Charles Amyot.
« A nos intrépides pêcheurs de Baleines, les Basques.
« Hommage de la Société Provancher d'Histoire naturelle du Canada. »

“ A.D. 1938 ”



Between two renovated ovens at the east end was erected a stone pyramid, or stela, 12 feet high, with another bronze plaque bearing an excerpt from « La relation des Jésuites » of 1664, reading as follows :

- « Extrait de la Relation de la Nouvelle-France en l'année 1664, Chap. 3.
- « Cette isle est bien agréable. Elle porte le nom de l'Ile-aux-Basques à raison de la pesches des Baleines que les Basques y faisoient autrefois. Je pris plaisir de visiter les fourneaux qu'ils y ont bastis pour faire leurs huyles, on y voit encore tout auprès de grandes costes de Baleines qu'ils ont tuées ». Le Père Henri Nouvel, le vingt-cinquiemes jour de Mars 1664.
- « La Société Provancher d'Histoire Naturelle du Canada et la Commission des Monuments Historiques de Québec. A.D.-1938. »



Father Nouvel left interesting « relations », specially of his missions in that district, and Ile-aux-Basques is often mentioned. Again in the « Relation des Jésuites », 1664, he writes :

« Le 22 mars, les glaces ayant fondu en partie, nous allâmes par terre où nous avions laissé notre chaloupe. Lorsque nous entrâmes dans les bois nous la trouvâmes toute couverte de neige. Il fallut trois jours pour la mettre en état. Ensuite de quoi nous nous embarquâmes pour l'Isle-aux-Basques où nous arrivâmes à travers les glaces, dans un jour. Cette isle, qui n'est éloignée du côté du sud que de trois lieues et de sept du côté du nord est bien agréable. Elle n'a qu'une lieue de longueur et demi-lieue de largeur. »

« Et ce fut à cette isle où la Providence de Dieu nous conduisit pour y passer la quinzaine de Pasques et où nos sauvages ont donné des marques de leur piété. A peine eus-je marqué un lieu pour y dresser la chapelle que d'abord les hommes courent à leurs haches pour couper du bois nécessaire à la fabriquer et les femmes et les filles ramassent des branches de sapin pour la paver, tapisser et couvrir. Nous n'eûmes besoin que d'un jour pour la mettre en état d'y faire nos prières.



Pond on Basque Island

« Le jour de Pasques au midi il y eut grand festin à la sagamité faite de blé d'Inde bouilli que le Père avait envoyé quérir sur l'Île Verte, laissé là au commencement de l'hiver, de graisse et de viande d'original fumé. On y mangea aussi un paquet de langues d'original, don d'un sauvage au Père. Après chansons, sermon, harrangues et réjouissances, il fallut sortir de l'Isle.

« Mais avant de sortir de l'Isle des Basques, pour passer du costé du nord, je rendis les derniers devoirs au corps d'une petite fille qui estait morte depuis deux mois. Son père qui estait Montagnez fut bien aise qu'elle fut ensevelie dans notre chapelle et devant une grande croix que nous avons plantée, vis-à-vis la porte ».

And the good Father, on his way to the Papinachois mission, continues :

« Ayant laissé les Montagnez qui avaient hiverné avec nous dans l'Isle des Basques, je passay du costé nord avec les Papinachois, à la faveur d'un beau jour que Dieu nous donna pour faire notre traite de sept lieues. Nous abordâmes à Esseigiou, — Les Escoumains, — rivière célèbre à cause du grand nombre de saulmons qu'on y prend dans la saison de pesche ».

Father Nouvel was undoubtedly the apostle of that region which, later on, included the Seigniory of Trois-Pistoles granted to Denis de Vitré on Jan. 6, 1687, « avec les îles des environs », including Basque Island. Father Nouvel visited l'Île Verte⁽¹⁾ as a missionary in November 1663 when this island was but a fishing and hunting post known only to the Indians ; it is said, however, that Father Gabriel, another Jesuit missionary, had preached several missions there before Father Nouvel. In any event when Father Nouvel arrived on Nov. 24, 1663, he found 68 Indians « tant Papinachois que d'autres nations » barricaded in a palisade fort because of a band (« cabanage ») of Iroquois which had been discovered nearby on the mainland. The mission lasted ten days and the zeal of the good Father was rewarded by the christening of six children and a Papinachois chieftain « dans une petite chapelle qu'on y dressa ».

(1) About ten miles west of Basque Island.

The records show that the same region of l'Ile-aux-Basques and l'Ile Verte was also visited a little later by Father Albanel and Father De La Brosse.⁽¹⁾

History

How far back can we trace the history of this mere speck on the map of New France ?

The first deed to Basque Island is dated January 6, 1687. It is mentioned in « Concessions de Seigneuries et Fiefs », as revised by Mr P. G. Roy, Provincial Archivist ;

« Acte de concession du marquis de Denonville et Bochart de Champigny, gouverneur et intendant de la Nouvelle-France, à Charles Denys de Vitré, Conseiller au Conseil Souverain de ce pays, de deux lieues de front le long du fleuve St-Laurent, du côté du sud, à prendre depuis la concession du sieur de Villerey en descendant ledit fleuve St-Laurent, la rivière des Trois-Pistoles comprise, et les isles qui se trouvent dans les deux lieues de la présente concession sur deux lieues de profondeur, même l'Isle aux basques si elle se trouve dans ladite quantité par la présente concédée . . . En fief seigneurie et justice . . . ».

(1)—Father Ambroise Rouillard, a Recollet known as Father Ambroise, who preached on several occasions in the parishes and missions of the Lower St-Lawrence from 1727 to 1768, is also said to have visited Basque Island. Legend tells us that Father Ambroise was drowned during one of his journeys at Point-de-la-Cive, near the "murailles" between Rimouski and Trois-Pistoles. The legend of his death is told by J.-C. Taché in his fine book : "Forestiers et Voyageurs".

It appears that Father Ambroise, about to leave for Rimouski, asked Seigneur Rioux, of Trois-Pistoles, whose guest he was ; "My good Monsieur Rioux, could you not give me an old tin cup for my travels. I had the bad luck to lose mine, I don't know how or when".

The generous Seigneur presented him with a beautiful silver goblet. The priest showed some hesitation in accepting it and promised to return it. "Take it, Father", said the Seigneur, "it will be returned to me or my family after your death. If you lose it, God will bring it back to me".

At Pointe-de-la-Cive, Father Ambroise's canoe overturned and he was drowned. The following morning, Madame Rioux found the goblet in her house at Trois-Pistoles, at the usual place and as if it had never been handed over to the missionary.

According to the story, Father Ambroise's portrait had been painted sometime before leaving for his mission. When he looked at it he said : "Truly, I look like a drowned man". Therefore, when Madame Rioux found the silver goblet back in its proper place, she exclaimed : "Father Ambroise is dead. He was right when he said that he looked like a corpse on his portrait. . ."

The grant was made « en fief seigneurie et justice » according to the customs of the time. The « bref de confirmation » of the seigniorie was issued by the king on January 1st 1688. It was first called : La Seigneurie de la Rivière des Trois-Pistoles, but it became La Seigneurie des Trois-Pistoles.

On Nov 13, 1688, Monsieur de Vitré rented his property with all charges and conditions to Louis Riverin, a director of the Compagnie du Nord and a Quebec resident, “ moyennant le prix et somme de cent livres de rente annuelle que l'acheteur s'engageait à payer par chacun au vendeur en son hotel à Québec ». Mtre Rageot drew up the contract and the lease was to last nine consecutive years.

On March 15, 1696, M. de Vitré traded his Seigneurie des Trois-pistoles for a property situated on the Island of Orleans (then called Ile St-Laurent) and owned by Jean Riou, a farmer of St-Jean, I.O.; the seigniorie was ceded with all the rights and obligations contained in the deed of Jan 16, 1687. M. de Vitré also agreed to give Riou « une chaloupe biscayenne avec ses agrès, cables, voiles, grapins, prête à faire voile pour aller au dit lieu dans la rivière des Trois-Pistoles ». The deed of exchange was passed before Mtre Chamballon, at Quebec, on March 16, 1696.

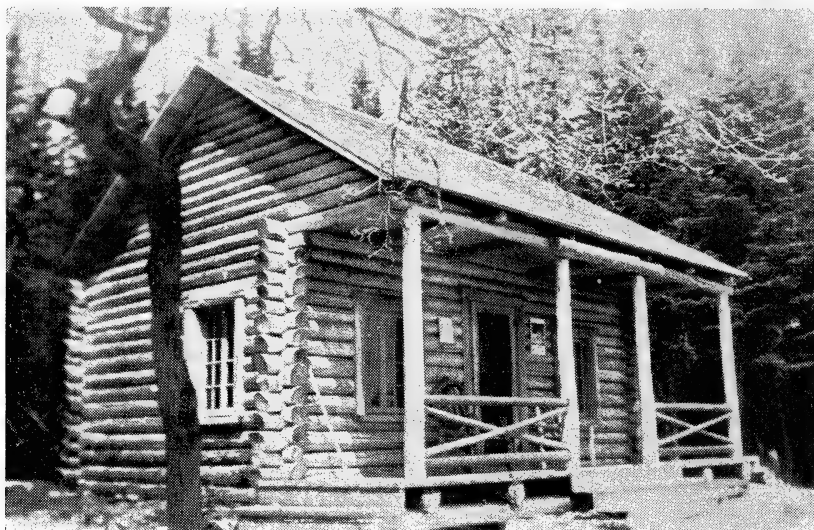
The new proprietor arrived at Trois-Pistoles on June 16, 1697 to establish residence with his wife and son. He was the first settler and the founder of Trois-Pistoles.

From him, Basque Island and the seigniorie passed to his son, Nicholas, and successively, in direct lineage, to Etienne Rioux père, Etienne Rioux fils, Joseph Rioux and Eloi Rioux, all « seigneurs ».

Under Eloi Rioux, the island bore No 54 on the « cadastre seigneurial ». It was rented to Charles H. Têtu, who therefore became the first « censitaire », at an annual price of « un louis, dix chelins et six deniers », which would represent \$6.10 in present currency. But Têtu transferred Basque Island to Magloire Dubé, of Trois-Pistoles, who decided to farm it and built a house and barn on the west end. Domestic animals, cattle and sheep, were sent over from the mainland and a man by the name of Bernier became Dubé's farmer and lived on the island with his family for two years. The entreprise was abandoned for unknown reasons

The house was left standing and people used to visit it until 1900. It was quite a large building, painted white, with a shingle roof painted in red. Hunters used it as shelter in the fall. The site may still be seen although it is disappearing gradually under the new vegetation.

After Magloire Dubé the island changed hands frequently. The different owners were: Alice Gauvreau, of St-Jean Baptiste de l'Île Verte, wife separate as to property of Elias Mailloux ; Dr Damase Rossignol, of Rivière-du-Loup, who bought it on June 27, 1888, and sold it to J. Alphonse Lavigne, of Trois-Pistoles, on Sept. 5, of the same year ; Louis Paradis bought it from Lavigne on January 29, 1907, and transferred it a few days later, Jan 29th, to S.C. Rioux, attorney in Rivière-du-Loup. Finally, as mentioned before, it was sold by Mr Rioux to the Provancher Society of Natural History of Canada on June 24, 1929. The sale price was payable to the heirs of the late Eloi Rioux, former seigneur of Trois-Pistoles. (\$2,500.00).



Provancher Camp on Basque Island

It may be noted here that the island is protected against mine prospecting by an order-in-council passed in July 1929. It was discovered some years ago that the soil showed traces of minerals, as did that of some of the nearby islands. The disturbing arrival of prospectors was feared but the Society was on the qui-vive and, with the helpful recommendation of Hon. J.ED. Perrault, then Minister of Mines, the order-in-council forbade prospectors access to the islands under the Society's control. Thus was assured the protection of wildlife on Basque Island.

A few words on Whales

The presence of whales in the St-Lawrence in the old days was not a myth or a legend. Jacques Cartier, Champlain, Father Charlevoix and Father Nouvel all concur in reporting that whales were plentiful in that part of the river during the beginnings of the colony. In his « Histoire de la Nouvelle France », Father Charlevoix writes :

« Tout ce pays, — les parages du Saguenay, — est plein de marbre », (the Tadoussac cliffs evidently misled the good Father), “ mais sa plus grande richesse est la pêche à la baleine. En 1705, vers le mois d'août, estant mouillé avec le « Héros » dans ce même endroit, je vis quatre de ces poissons qui entre tête et queue étaient presque la longueur de notre vaisseau. Les Basques ont fait autrefois cette pêche et on voit encore sur cette isle qui porte leur nom et qui est un peu plus bas que l'Île Verte des restes de fourneaux et des costes de baleine ». . . .

It is said that the Basques gave up whale hunting for fur trading which entailed less hardships and danger and was more profitable.

At the beginning of the 18th century, hardy Canadians tried their hand at it but those brave mariners, such as Hilaire Brideau and Lafontaine de Belcour, were without funds and could not keep it up for long. Since then, no others have tried it, to the best of our knowledge. As a matter of fact, the whales disappeared from our waters, and they now keep to the Gulf where they still appear in numbers although modern gear, such as the Basques never dreamed of, is taking a heavy toll.

Every once in a while, however, one of those marine monsters comes up on a pilgrimage to the hunting grounds of his ancestors. One individual, 36 feet long, was reported caught in the harbour of Montreal, in 1901. About the same time, another was stranded in the St-Charles river, near Quebec. In 1936 a good-sized whale was captured near one of the Razades. A few years before, another had been killed on the shores of Lotbinière; it measured 17 feet and weighed 2200 pounds.



But no whale ever caught in the St-Lawrence has a more amusing and interesting history than the one found on Friday, August 16, 1754, by two young Trois-Pistoles fishermen. It caused more commotion and attracted more attention than any other. The ponderous legal machinery of the time was set in motion and the official collector of duties for the King of France also intervened.

The saga of this historical animal deserves to be told, if only to show the strange and devious ways of justice in the old days. As regards the poor whale itself, it was only the « corpus delicti » and could not register a plea of « guilty » or « not guilty » because it was decidedly dead when found.

Here is the story. One morning, Vincent and Jean-Baptiste Rioux, of Trois-Pistoles, were getting their fishing boat under sail when they saw in the distance a great floating mass drifting down with the current. The oars were pulled out and they hastened towards what they thought was some great piece of wreckage but which

turned out to be an enormous dead whale. It was an easy catch. With the help of ropes they towed it towards Basque Island which was the nearest landing point. There it was made fast and the happy youngsters went aboard the schooner « Marie-Anne », under captain Laurent Lamelin, which was anchored close by. Captain Lamelin had also seen the drifting whale and was setting out to salvage it when he saw the Riou's boat approaching. He justly decided to leave the catch to the young men who had first seen it.

The two brothers, who knew something of the law, were delighted to find out that the captain had noticed the whale afloat before they took possession of it and their purpose in coming aboard was to ask him for a written declaration to the effect that they had found it afloat. Captain Lamelin willingly signed the declaration and the brothers went back to the village.

They returned with their father and two or three willing helpers and the whale was towed to the mainland where they set out to cut it up and extract whatever was of commercial value.

In the meantime, Captain Lamelin and his « Marie-Anne » set sail for Quebec where the news of the capture spread quickly. It was the Riou's undoing.

Under the regulations in force at the time, (« ordonnances des intendants »), the dead whale was considered as wreckage. If found afloat it belonged to the finder ; if found ashore it was the king's property. Either way, a report had to be made under penalty of law.

As soon as the Quebec authorities heard of what had happened they went into action. Captain Lamelin was summoned before Guillaume Guillaumin, King's Counsel, civil and criminal lieutenant general of the Admiralty of Quebec. He declared that the whale had been found afloat. But Sieur Nouchet, customs officer for His Majesty the King, and Sieur Joseph-Lidelle Devoisy, collector of duties for the Admiralty, were not satisfied. They decreed that the oil and all by-products from the whale be brought to Quebec and the Riou Brothers were also ordered to appear before the court. But their father refused to comply, and wrote the King's prosecutor a letter which was considered impertinent. Justice was obdurate, however, and the judge permitted the prosecutor to effect seizure.

It was then late in October and communications were becoming difficult between Trois-Pistoles and Quebec.

Nicholas Riou finally arrived in Quebec towards the end of January with his two sons but without the « corpus delicti ». During his questioning he declared that they had extracted from the whale 38 barrels of oil and 460 whale-bones, the average length of the latter being 8 feet. He apologized for the tone of his letter and was fined « cinquante livres » for having ignored the first summons.

But that was not the end of the case. For reasons known only to himself, the learned judge found it indispensable to have before him the oil and the whale-bones, in order to decide whether the whale has been found afloat or ashore, and ordered them immediately brought to Quebec ; navigation still being closed, the hearing was set for the 20th of May.

The exhibits were in Quebec on the desired date ; but on the very same day, the customs officer became satisfied, no one knows how or why, that the famous whale had been found afloat and consequently belonged to the Riou. He therefore signed the following document :

« Nous, receveur des droits de douanes du Roi au Canada, sur la communication qui nous a été faite d'une procédure instruite à la requête du procureur du roi contre le nommé Nicholas Riou, père, tant pour lui que pour ses enfants Vincent et Jean-Baptiste Riou, à l'occasion d'une baleine par eux capturée, et après l'examen de toutes pièces qui composent la dite procédure, il nous a paru que la dite baleine a été trouvée à flot. Nous, receveur susdit, abandonnons toute prétention, poursuite, action contre lesdits Riou.

Fait à Québec, le 23 mai 1755. Nouchet.»

Thus ends the odyssey of the whale.

The only tangible signs of the Basques' passage in the St-Lawrence seem to be the try-ovens left on Basque Island and so wisely restored by the Provancher Society. Some of the directors feel sure that careful search and excavation by specialists around these ovens would uncover other finds, such as axes, knives and other implements used by the Basques.



Photo F. Joli

Globicephala meloena (Traill) — Stranded on the beach — Trois-Pistoles, Aug. 31, 1930

Botanical Inventory

In 1929, when Basque Island became the property of the Society, Dr D. A. Déry, then president, invited one of our greatest Canadian naturalists, Rev Brother Marie-Victorin, E.C.D., D. Sc., M.S.R.C., professor of Botany at the University of Montreal, to visit the island. They were accompanied by Dr Geo Préfontaine, Biologist at the University of Montreal, Brother Roland Germain, professor of Natural Sciences at Longueuil College, and Mr Emile Jacques, attached to the Department of Botany, Univ. of Montreal. The result of their observations, on that one-day excursion, is contained in a preliminary report prepared by Brother Marie-Victorin and published in French in our Annual Report for 1930. The translation reads as follows :

« Basque Island owes its elongated form and its orientation to its schistous beds, silicolous and slaty, uniformly sloping towards the south-west and rising to the north-east. Consequently, the coast on the north shore is rocky and abrupt whereas the south side slopes gently and is covered with vegetation to the water line.



Basque Island-North side

Photo Br. Marie-Victorin

« The forest surrounding the pond, in the center of the island, occupies the elevated part. The remaining area is a natural prairie spreading to both extremities, rather narrow on the south side and practically non existant on the north side.

The trees or shrubs which form this central forest are :

Picea glauca
Abies balsamea
Salix humilis
Salix Bebbiana
Sorbus americana

Populus balsamifera
Populus tremuloides
Betula papyrifera
Alnus mollis

In the natural meadow, one first observes a certain number of woody plants, the whole group forming a distinctly shrubby growth:

Juniperus horizontalis
Juniperus communis
var depressa

Ribes lacustre
Ribes hirtellum
Vaccinium angustifolium

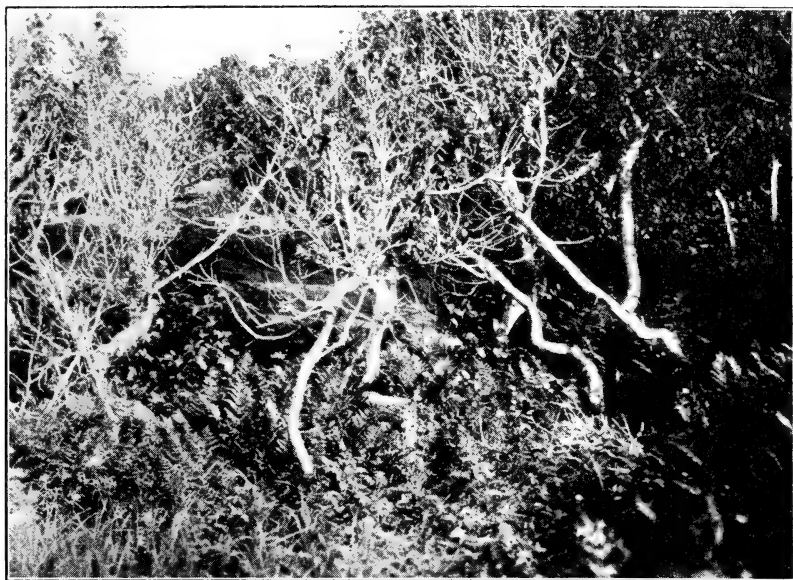


Photo Br. Marie-Victorin

Basque Island — Effect of sea winds on the growth of *alnus mollis*

Outside of these elements which constitute the upper vertical zone, the natural meadow is formed of herbaceous, semi-woody or woody plants, which, from an ecological point of view, may be grouped as follows :

a) Shoreline elements, plants of brackish or sandy habitats :

Elymus arenarius, var. *villosus*

Ammophila breviligulata

Spartina pectinata

Festuca rubra

Atriplex glabriuscula

Atriplex hastata

Glaux maritima

Potentilla Anserina

Mertensia maritima

Cakile edentula

Lathyrus japonicus

Plantago juncooides

Rumex pallidus

b) Rock-inhabiting species :

Woodsia ilvensis

Vaccinium Vitis-Idaea

Potentilla pensylvanica

Sagina nodosa

Vaccinium uliginosum
Empetrum nigrum
Iris Hookeri

Sagina procumbens
Cerastium arvense

c) Mesophytic species :

Calamagrostis canadensis
Carex flava
Carex Crawfordii
Spiranthes Romanzoffiana
Epilobium glandulosum
Epilobium palustre
Epilobium angustifolium
Cardamine pennsylvanica
Cardamine parviflora
Potentilla norvegica
Campanula rotundifolia
Primula laurentiana

Gentiana Amarella
Sanguisorba canadensis
Rumex orbiculatus
Lathyrus palustris
Vicia Cracca
Prenanthes trifoliata
Erigeron angulosus
Sonchus arvensis
Hieracium canadense
Cirsium lanceolatum
Cirsium arvense

d) Plants ordinarily growing in woods elsewheres but here found in the open natural meadows :

Lycopodium annotinum
Lycopodium Selago
Dryopteris spinulosa,
var. americana

Trientalis borealis
Viola renifolia
Pyrola secunda
Pyrola asarifolia

« All things considered and in view of the small area under observation, this florule can be called relatively rich. A fact worthy of note is that it includes two species which are distinctly sub-arctic : *Vaccinium Vitis-Idaea* and *Vaccinium uliginosum var alpinum*. The latter was recently located at an altitude of 3000 feet in the mountains of St-Urbain, County of Charlevoix, by Mr Jacques Rousseau. Here it is found at sea level. These two localities constitute the western limit of its geographical distribution in Quebec.

« For quite a while, the island was used as a pasture for sheep. Except for an abundance of thistle, *cirsium arvense*, this does not seem to have brought any noticeable change in the vegetation.»

In a paper on « La Florule Phanérogamique de l'Ile-aux-Pommes » found on pages 71-74 of the 1931 report of the Biological Station of the St-Lawrence, at Trois-Pistoles ⁽¹⁾, Marie-Victorin writes as follows :



Photo Br. Marie-Victorin

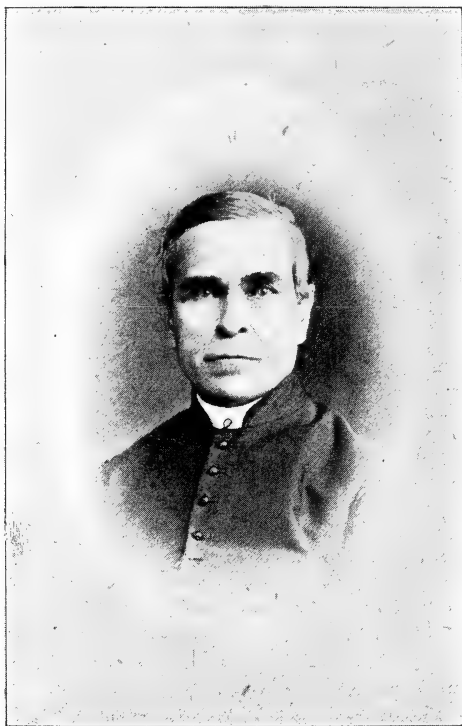
Basque Island — West end

« In conclusion, I would point out that these islands, l'Ile-aux-Basques, l'Ile-aux-Pommes and Les Razades, are natural habitats marvellously preserved and constituting an asset of primary importance . . . I therefore recommend that the Provancher Society and the Biological Station work hand in hand in order that the islands be maintained in their present state for the future. Now that the study of natural sciences is receiving the attention it deserves in our province, it is important that this practically unexplored field of observation be used by professors, as a necessary adjunct to the laboratory, for lectures on animal or plant ecology.»

(1) This station has since been moved to Grande Rivière, Gaspé.

This declaration by our great naturalist shows the real value of the Provancher islands and justifies the sacrifices made for their acquisition and protection.

In closing this chapter, it is indeed a pleasure to mention that Rev Léon Provancher, patron of the Society and one of the first French-Canadian naturalists, visited Basque Island on several occasions during the short time he was parish priest of l'Île Verte (1852-1854). Some of the observations made there helped in the preparation of his « Flore Canadienne », 1862, 2 vols. He also wrote : « Mollusques de la Province de Québec », 1891, « Les oiseaux du Canada », 1874; « Les oiseaux insectivores et les arbres d'ornement et forestiers », 1874; « Petite faune entomologique du Canada », 4 vols, 1877-86, and « Traité élémentaire de la Botanique », in 1858.



Rev. L. Provancher

THE RAZADES

These two rocky islets probably owe their name to their low elevation above the high-water mark. The French word « raz », or « ras », means « strong current or wave on the surface in a narrow passage », and « rasant » means « passing near », . The origin of the name may also derive from « rasade », which is a liquid filling a cup to the brim ; with the passing of time, the « s » would have become a « z ». It is not always easy to explain local appellations. The figures of speech and expressions used by our ancestors, if typical and picturesque, were not always accurate. Or if so at first, the meaning and spelling sometimes changed with each succeeding generation. In this case, however, the origin of the name seems fairly obvious.(1)

The Upper, or S. W. Razade

The Upper Razade has an area of approximately 20 acres at low tide, and its highest point of elevation is 17 feet. It lies about two miles off-shore, opposite Cap Marteau, which is 4 miles east of the village of Trois-Pistoles.

This small island was part of the seigniority granted on June 14, 1702, to Claude de Bermen, Sieur de la Martinière, by Chevalier de Callières and Bochart de Champigny. For those of our readers who are interested in ancient documents, we give the text, in old French, of the original grant :

« A Claude de Bermen, sieur de la Martinière,

Sur la réquisition à nous faite par Claude Bermen, escuyer,
sieur de la Martinière, conseiller au Conseil souverain de ce
pays de vouloir luy accorder une lieue de terre de front sur

(1) Another possible origin of the name would be the word « rassader » which in Indian folklore means: to decorate leather, more particularly moccasins, with beadwork, porcupine threads or tufts of wool.— The islands, being very low on the water, would be like tufts on the top of a moccasin.

One of our members recalls having heard his father mention that term in his young days and the word « rassader » is known to Mr Luc Lacoursière, specialist in folklore at Laval University, as part of the Indian folklore.



Photo Br Marie-Victorin

Upper or S. W. Razade

deux de profondeur en lieux non concédez le long du fleuve St-Laurens à prendre de la borne de Jean Riou, en descendant vers le Bicq avec les isles, islets et batures qui se pourroient rencontrer an dedans et au devant de la dite étendue, à quoy ayant égard, Nous, en conséquence du pouvoir à nous conjointement donné par Sa Majesté, avons donné, accordé et concédé, donnons, accordons et concédons au dit Sr de la Martinière par ces présentes, la dite lieue de terre de front sur deux de profondeur en lieux non concédez le long du fleuve St-Laurens, à prendre de la borne de Jean Riou, en descendant vers le Bicq avec les isles, islets et batures qui se pourroient rencontrer au dedans et au devant de la dite étendue pour en jouir par luy ses hoirs et ayans cause en propriété à toujours à la charge cinq sols de rente et six deniers de cens par chacun an au jour ordinaire envers le domaine de Sa Majesté ; les dits cens portant lods et ventes, saisine et amande suivant la coutume de Paris suivie en ce pays et d'obtenir de Sa Majesté ratification de la dite concession dans l'an et jour des présentes.

En témoin de quoy nous les avons signées, à icelles fait aposer les sceaux de nos armes et contresigner par nos secrétaires.

Fait à Québec le quatorzième juin mil sept cent deux.

(Signé) LE CHEVALIER DE CALLIÈRES,
BOCHART DE CHAMPIGNY.

Par Messesseurs, Hauteville et André.

It was on January 21, 1927, before Notary B. C. de la Chevrotière, of Quebec, that the Upper Razade was sold to the Provancher Society by Charles François Rioux, civil employee, living in Limoilou, Quebec, acting for himself and as guardian to his six children, three of them minors, all co-proprietors of the island which bears No 666 on the official cadastre of the parish of Trois-Pistoles, Temiscouata. The price of the property, free of all encumbrance, was \$500.00 and the Society was represented by Dr D. A. Déry, President, and Louis B. Lavoie, Sec-Treasurer.

Botanical data

In his preliminary report of 1929 already mentioned, Brother Marie-Victorin wrote as follows concerning « la Razade d'en haut »;

« The vegetation of the Upper Razade offers no marked zonation and the island is covered with the following species :

<i>Calamagrostis canadensis</i>	<i>Potentilla Anserina</i>
<i>Atriplex glabriuscula</i>	<i>Ribes hirtellum</i>
<i>Achillea Millefolium</i>	<i>Lathyrus japonicus</i>
<i>Achillea Millefolium, f. rosea</i>	<i>Elymus arenarius, var. villosus</i>
<i>Rumex pallidus</i>	<i>Ligusticum scothicum</i>
<i>Campanula rotundifolia</i>	<i>Coelopleurum lucidum</i>
<i>Puccinellia paupercula</i>	(only one specimen)
<i>Plantago juncoïdes</i>	<i>Sonchus arvensis</i>
<i>Potentilla norvegica</i>	<i>Gnaphalium uliginosum</i>
	<i>Poa sp.»</i>

The Cross on the Upper Razade

The stone cross which stands on the highest point of this island commemorates the tragic event of Dec 24, 1839.

On that fateful day, the peaceful citizens of Trois-Pistoles were amazed to see the ice covered with black moving dots between Basque Island and the Razade. They soon realized that seals by the thousands were within their reach. What an opportunity ! Every



Photo Br. Marie-Victorin
Blue joint grass (*Calamagrostis canadensis*) Upper Razade

available man rushed down, armed with guns, axes, clubs and any weapon that was at hand. The killing started and the ice surface was soon covered with pools of blood and piles of dead seals. The hunters were so busy that they forgot all about time and tide. Some were dragging their victims towards the shore where horse-drawn sleds awaited them, others were already arguing about the ownership of certain stocks when a great clamor was heard.

A rising southerly wind and possibly the ebbing tide had been at work and had detached from the shore an immense field of ice bearing nearly 200 men and their spoils. The giant floe was being carried away in plain sight of frantic women and children running



The cross on the Upper Razade

Photo Jos. Matte

to and fro on the shore, unable to do anything to help their loved ones. Some of the trapped hunters jumped off the ice and succeeded in reaching land. The others were caught and their amazement soon gave way to despair. The situation was hopeless, they were facing a horrible death in icy waters. Their cries of alarm echoed the shouts coming from ashore and the scene was a tragic one indeed.

Darkness came, with the whole village in a frenzy. The church bell was calling every soul to prayer, the parish priest, women and children were still on the shore praying for a miracle that would save the unfortunate hunters. During the night the wind veered ; the ice floe, which was beginning to desintegrate, slowly changed its direction as if guided by a supernatural force, and finally came to rest on the western end of the Upper Razade where every man landed safely. No one was missing. They were all taken ashore in the morning amidst the rejoicings of the whole population. It was December 25, 1839, and one may well imagine how that Christmas Day was celebrated.

During the following summer of 1840 a wooden cross was erected on the Razade in commemoration of the miraculous rescue. It stood until 1887 and was replaced by another. In 1927, a group of Trois-Pistoles citizens and the directors of the Provancher Society decided to erect a permanent stone cross in place of the wooden one.

A committee was formed under Rev Joseph Elzéar Pelletier, parish priest of Trois-Pistoles, and Mr Héliodore Laberge, Quebec architect, graciously consented to prepare the plans of the monument. A public subscription was soon organized which quickly provided the necessary funds.

Honorary members of the committee were : Cannon J. E. Pelletier, Messrs Joseph Moyen, Michel Leblond, Félix Labrie, Julien Rioux, Achille Boucher, Samuel Boucher, Hormisdas Martin, Achille Bélanger, Théophile Bélanger, Elzéar d'Amours, Eloi Rioux, Michel Parent, Vincent d'Amours, Maximè Morency, Théophile Côté, François Pelletier, Honoré Bastille, Joseph Lavoie, Magloire Castonguay, Joseph Lévesque, Timothée Boucher.

Active members : J. H. Rousseau, N.P., President ; Rev Pierre Sirois, Secretary ; Rev Lucien Deschènes, Asst-secretary ; Other members : J. Ernest Rioux, Philippe Renouf, Jean Baptiste Deschènes, Léon d'Amours, Honorius Morin, Mathias d'Amours, Joseph Rioux, F. Martel, mayor of the parish, Ernest Dionne, mayor of the town, Louis Rioux, city clerk, Philippe Plourde, L. Morency, Epiphane l'Italien, School inspector, J. A. Picard, René Rioux, Amédée Rioux, David Rioux, Dr D. A. Déry, Dr S. Gaudreau, E. Boucher, N.P., Dr J. Langlais, Dr O. Lacroix, Nazaire d'Amours, Frédéric Michaud.

The complete monument as it stands today was erected on July 31, 1930. It is 14 feet high and consists of a square stone base set in cement and a one-piece cross hewn out of a huge piece of granite. It was placed near the old wooden cross and a bronze plaque in the base bears the following inscription :

« Nos pères, partis à la dérive sur les glaces en chassant le loup-marin, atterrirent providentiellement sur cette île, le 25ème jour de décembre 1839 ». — « Hommage de leurs descendants ».

The Lower, or N. E. Razade

The lower Razade covers about the same area as the other and only rises a few feet above the high-water mark. It lies almost two miles east of the Upper Razade, opposite the line separating Trois-Pistoles from the parish of St-Simon, Rimouski Co., to which it belongs for municipal purposes.

It was first included in the Seigneurie de la Baie du Ha ! Ha ! granted to Nicholas Riou on April 6, 1751, by the Marquis de la Jonquière, Governor of New-France. The record of the original grant reads, in part, as follows :

« . . . Nous, en vertu du pouvoir à nous donné par Sa Majesté et sous son bon plaisir, avons accordé et concédé, accordons et concédons au dit Nicholas Riou l'estendue de terrain qui se trouve non concédé, entre la seigneurie des Trois-Pistoles et les terres appartenantes aux représentants feu M. de la Chenaye, sur quatre lieues de profondeur, avec les isles, islots et battures qui se trouvent audevant dudit terrain ; pour en jouir par luy, ses hoirs et ayans cause, à perpétuité, à titre de fief et seigneurie, haute, moyenne et basse justice, avec droit de pesche, chasse et traitte avec les sauvages dans toute l'estendue de la dite concession ; à la charge de porter foy et hommage au chateau St-Louis à Québec, duquel il relèvera aux droits et redevances accoutumés suivant la Coutume de Paris suivie en ce pays ; de conserver et faire conserver par ses tenanciers les bois de chesne propres pour la construction des vaisseaux du roy ; de donner avis à Sa Majesté des mines, minières et minéraux si aucuns se trouvent dans l'estendue de ladite concession ; que les appellations du juge qui y sera établi ressortiront en la prevosté de Québec ; d'y tenir feu et lieu et le faire tenir par ses tenanciers ; de désertter et faire désertter la dite terre, à faute de quoy la présente concession sera et demeurera nulle et comme non avenue ; laisser les chemins du roy et autres jugés nécessaires pour l'utilité publique, et de faire insérer pareilles conditions dans les concessions qu'il fera à ses tenanciers, aux cens, rentes et redevances accoutumés par arpent de terre de front sur quarante de profondeur ; lais-

ser les grèves libres à tous pêcheurs, à l'exception de celles dont il aura besoin pour sa pesche ; et en cas que Sa Majesté ayt besoin dans la suite d'aucune partie dudit terrain pour y faire construire des forts, batteries, places d'armes, magasins et ouvrages publics, Sa Majesté pourra les prendre, aussi bien que les arbres nécessaires pour lesdits ouvrages, et le bois de chauffage pour la garnison des forts, sans estre tenue à aucun dédommagement ; réservons pareillement au nom de Sa Majesté la liberté de prendre sur ladite concession les bois de chesne, mâtüre et généralement tous les bois qui sont propres pour la construction et armement des vaisseaux, sans estre légalement tenue à aucune indemnité ; le tout sous le bon plaisir de Sa Majesté, de laquelle il sera tenu de prendre confirmation des présentes dans l'an.

En témoin de quoy, &c.

Fait et donné à Québec, le 6 avril 1751.

(Signé) LAJONQUIÈRE, et
BIGOT.

Contresignés et scellés.

Pour copie,
BIGOT.

« Par Monseigneur St-Sauveur et par Monseigneur Duchesneau ».

The island eventually became the property of the Brown Corporation, whose president, Mr W. R. Brown, was greatly interested in the work of protection and conservation carried out by the Provancher Society. A resolution passed on March 28, 1927, by the board of directors of the company authorized the donation of the Lower Razade to the Society and the deed of transfer was signed before Mr Reginald Meredith, N.P., a founding member of the Society, on April 6, 1927. The Brown Corporation was represented by Mr W. R. Brown and the Provancher Society by Mr George M. Mitchell, President, and Mr Louis B. Lavoie, Sec-Treasurer,

both duly authorized by a resolution of the board of directors adopted on March 24, 1927.

This Razade, bearing No 391 of the official cadastre of St-Simon, was simply transferred to the Society on condition that it be used as a bird sanctuary. Should the Society fail to maintain it as such, the island is to revert to the Brown Corporation without any legal formalities.

Botanical data

The 1929 report of Brother Marie-Victorin contains the following information on the Lower Razade :

« The vegetation of the « Razade d'en bas » is typical of the plant-life found on the rocky islands in the lower St-Lawrence which have become bird sanctuaries.

« Similarly to Basque Island, the Lower Razade owes its shape to the bed of Paleozoic rocks rising to the north-east and sloping to



Photo Br. Marie-Victorin

Growth of *Senecio pseudo-Arnica* due to guano deposits

the south-west. The beds, in both instances, are the last visible traces of the great Appalachian chain of mountains.

« The island is surrounded by a belt of the ordinary halophytes found in this habitat :

Senecio pseudo-Arnica

Ligusticum scoticum

Elymus arenarius, var. *villosus*

Atriplex glabriuscula



Photo Br. Marie-Victorin

Growth of *Coelopleurum lucidum* due to guano deposits

« Because of the abundance of sea-bird excrements, these plants are robust and sometimes attain an extraordinary development. *Senecio pseudo-Arnica*, particularly, never reached such gigantic proportions, to the best of our knowledge. Trois-Pistoles constitutes the western limit of this magnificent composite which dots the shores of the gulf of St-Lawrence in an almost uninterrupted line.

« Worthwhile noting is the robust growth of *Coelopleurum lucidum* in this habitat. Were it not for the inflorescence which in this

species forms a cone-like umbel rather than a full-blown sphere, one would likely confuse it with *Angelica atropurpurea*.

« The crest in the center of the island is covered with raspberries (*Rubus idaeus*, var. *strigosus*), the presence of which may be attributed quite naturally to seed dropped with the excrement of birds.

« The ground between this crest and the belt of *Elymus arenarius* and of *Senecio pseudo-arnica* along the shore is covered with the following characteristic halophytes :

Cakile edentula
Arenaria peploides
Rumex pallidus
Coelopleurum lucidum
Ligusticum scothicum
Achillea Millefolium
Achillea Millefolium, f. *rosea*

Epilobium angustifolium
Lathyrus japonicus
Senecio vulgaris
Puccinellia paupercula
Potentilla Anserina
Plantago juncoides
Polygonum Fowleri
Poa sp. »



Senecio pseudo-Arnica

Photo Br. Marie-Victorin

Birds of the Razades and Basque Island

In 1929 and 1930, at the invitation of Mr R. Meredith, N.P., and Dr D. A. Déry, both founding members and directors of the Provancher Society, Mssrs Napier Smith and L. Mc I. Terrill, Canadian naturalists, visited the islands to study the avifauna. As stated in their report, ⁽¹⁾, relatively few migrants were present, owing to the time of their visits, and the species observed, with the exceptions noted, may reasonably be classed as summer residents.

Following is a list of birds observed by them. For the greater convenience of our members and readers, we give both French and English names. An asterisk indicates those whose nests were actually found :

Loon (*Gavia immer*) Plongeon à collier. — A few seen offshore.

Great Black-backed Gull (*Larus marinus*) Goéland à manteau noir. — A pair apparently nesting on a small rock adjacent to the Upper Razade.

Black Guillemot (*Cepphus grylle*) Guillemot noir — A few seen off the seaward cliffs of Basque Island.

* Herring Gull (*Larus argentatus*) Goéland argenté — Upwards of 300 pairs estimated to be nesting in the district.

(1)—Published in our 1930 year-book.



Photo R. Meredith

Black duck nest — Basque Island

* Double-crested Cormorant (*Phalacrocorax auritus*) Cormoran à aigrettes — A small colony nesting on the Upper Razade in 1930.

Merganser (Species ?) Harle ?.

* Black Duck (*Anas rubripes tristis*) Canard noir — Several nests found on Basque Island.

Scaup Duck (*Marila marila*) Morillon à tête noire — One seen off Basque Island ; probably an unmated bird.

* American Eider (*Somateria mollissima dresseri*) Canard eider — Abundant.

* Great Blue Heron (*Ardea herodias*) Grand héron bleu — A nesting colony on Basque Island.

* Black-crowned Night Heron (*Nycticorax naevius*) Héron de nuit — A nesting colony on Basque Island.

Green Heron (*Butorides virescens*) Héron vert — One wounded bird on Upper Razade. (Accidental visitor).

* Spotted Sandpiper (*Actitis macularia*) Maubèche tachetée — One nest. Not very common.

Ruddy Turnstone (*Arenaria interpres morinella*) Tournepierrre — Migrant. Flocks seen in 1929 only.

Duck Hawk (*Falco peregrinus anatum*) Faucon pèlerin — One very dark bird noted by Napier Smith in the act of capturing a young eider. Probably a visitor from the mainland cliffs.

* Osprey (*Pandion haliaethus carolinensis*) Aigle pêcheur — One pair nesting on Basque Is.

Barred Owl (*Strix varia*) Chouette du Canada — One seen on Basque Is, where there are a great many hollow trees for nesting purposes and an abundance of mice.

Hairy Woodpecker (*Dryobates villosus*) Pic chevelu — One pair on Basque Is.

Downy Woodpecker (*Dryobates pubescens medianus*) Pic minule — One seen on Basque Island.

* Northern Flicker (*Colaptes auratus luteus*) Pic doré du nord — A few on Basque Is.

* Crow (*Corvus brachyrhynchos*) Corneille — Several nesting on Basque Is.

* Northern Raven (*Corvus corax principalis*) Corbeau — One pair nesting on Basque Island. (1929-1930).



Photo Napier Smith

Osprey landing on its nest — Basque Island

Purple Finch (*Carpodacus purpureus*) Pinson pourpré — One noted on Basque Is.

White-winged Crossbill (*Loxia leucoptera*) Bec croisé à ailes blanches. — Several flocks on Basque Is.

Pine Siskin (*Spinus pinus*) Chardonneret des pins — Fairly common.

* Savannah Sparrow (*Passerculus sandwichensis savanna*) Pinson des prés. — A few. One nest.

* White-throated Sparrow (*Zonotrichia albicollis*) Pinson à gorge blanche. — A few noted on Basque Is. Two nests found.

* Slate-coloured Junco (*Junco hyemalis*) Pinson niverolle — A few noted on Basque Is. One nest found.

* Song Sparrow (*Melospiza melodia*) Rossignol — Two pairs on Basque Island. One nest.

* Fox Sparrow (*Passerella illiaca*) Pinson fauve — Probably 8 or 10 pairs on Basque Is. Two nests found.

Barn Swallow (*Hirundo erythrogastrea*) Hironnelle des granges — One on Upper Razade (a visitor from the mainland).

Red-eyed Vireo (*Vireosylva olivacea*) Vireo aux yeux rouges — Several pairs on Basque Is.

Nashville Warbler (*Vermivora ruficapilla*) Fauvette de Nashville — Several pairs on Basque Is.

Cape May Warbler (*Dendroica tigrina*) Fauvette du Cap May — A few migrants noted on Upper Razade.

Myrtle Warbler (*Dendroica coronata*) Fauvette à croupion jaune — A few on Basque Is.

* Magnolia Warbler (*Dendroica magnolia*) Fauvette à tête cendrée — A few on Basque Is. One nest.

Bay-breasted Warbler (*Dendroica castanea*) Fauvette à poitrine baie — A few on Basque Is.

Blackpoll Warbler (*Dendroica striata*) Fauvette rayée — Several. Probably migrants.

Black-throated Green Warbler (*Dendroica virens*) Fauvette à poitrine noire — Fairly common on Basque Is.

Northern Water-Thrush (*Seiurus noveboracensis*) Fauvette des ruisseaux — Two males heard singing on Basque Island.

Redstart (*Setophaga ruticilla*) Fauvette à queue rousse — Several on Basque Is.

Winter Wren (*Nannus hyemalis*) Troglodyte d'hiver — Well distributed on Basque Is.

Red-breasted Nuthatch (*Sitta canadensis*) Sittelle du Canada — A few on Basque Is.

Black-capped Chickadee (*Penthestes atricapillus*) Mésange à tête noire — A few on Basque Is.

Acadian Chickadee (*Penthestes hudsonicus littoralis*) Mésange à tête brune — A few on Basque Is.

Ruby-crowned Kinglet (*Regulus calendula*) Roitelet à couronne rubis — Two heard singing on Basque Is.

Golden-crowned Kinglet (*Regulus satrapa*) Roitelet huppé — A few on Basque Is.

* Olive-backed Thrush (*Hylocichla ustulata swainsoni*) Grive de Swainson — Fairly common on Basque Island. Several nests found.

« From many points of view the American Eider (*Somateria mollissima dresseri*) is the most interesting nesting bird. These islands are very near the southern extremity of its breeding range in the Gulf of the St-Lawrence and in all probability they harbour the

most densely massed colony in this part of the world. Although no actual count was made by the writers it has been estimated that there are in the neighborhood of 700 pairs of eiders on Upper and Lower Razade Islands and there are probably between 150 and 200 pairs on Basque Island. On Upper Razade it was apparent that practically every suitable spot unoccupied by Herring Gulls was used by the eiders. In many places the nests were contiguous. In one instance twenty-two were in view within a radius of 15 feet and it was necessary always to walk warily to avoid stepping on the eggs. . . .



Photos A. M. Bailey

« In 1929 male eiders were fairly common on the 12th of June, the last day of our visit, and many were heard giving their mating calls. In 1930 very few males were present, about 12 being seen, and on the day of our departure (June 24) only two were noted. No doubt the majority had already started on the peculiar pilgrimage which leads the male eiders away from the nesting colony . . .

« Another interesting bird, near the southern limit of its range in the east, whose bright song was heard as we stepped ashore on our first arrival at Basque Island, was the Fox Sparrow. Several pairs were present and two nests found.

« In 1930 there was evidence, particularly on the bare rocks of Upper Razade, of a late migration of Black-poll and Cape May Warblers . . . Perhaps the most unexpected of birds was an adult



Green Heron found on the Upper Razade

Photo L. Terrill

male Green Heron found on June 22d, 1930, with a damaged wing walking stealthily over the rocks and looking very uncomfortable and out of place in such a habitat ».

The bird colonies of the Provancher Society are amongst the most important of the St-Lawrence. In June 1931, Dr Harrison F. Lewis, Chief Migratory Bird Officer of the Dominion, stated in a report following one of his trips to the islands : « The concentration of nests of Eider Ducks on the Razades is the densest concentration of the nests of this species in such a large group that I have ever seen anywhere ».

On that occasion, Dr Lewis had found on both Razades 679 nests of Eiders and 613 of Herring Gulls ; in other words 1292 nests on two tiny rocks. He added in the same report :

« Owing to the field conditions encountered and the limited time available for making counts, there is no doubt that the counts are not complete, although they are believed to be within 5% of

completeness. The total number of occupied nests of Gulls and Eiders on the Razades at the time of this visit was undoubtedly more than 1300.

« The conditions observed are highly creditable to the efforts of the Provancher Society of Natural History of Canada in protecting valuable bird life on and near those islands ».

Another census was taken in June 1938 by Mr V.C. Wynne-Edwards, Professor of Ornithology at McGill University, and Mr Reginald Meredith, N.P., director of the Provancher Society. We quote at random from their report :

« At this date (June 11th and 12th), not many broods were hatched and very few of the young had gone down to the water. One nest found contained 13 eggs, one had 12, one had 11, several had 9, and large numbers had 8 or less. The results are as follows:

« Upper Razade :	Eider Ducks' nests	: 680
	Herring Gulls “	: 377
	Other species :	
	Great Black-backed Gull	: 1 nest
	Song Sparrow	: 1 “

Lower Razade :	Eider Ducks	: 732
	Herring Gulls	: 466
	Other species :	
	Song Sparrow	: 1 nest

Total number of	Eiders' nests on the	two Razades	: 1412
“ “ “	Herring Gulls' nests	“ “	: 843

“ *Ile-aux-Basques*: — Because of its large size and extremely dense cover anything like a census of nests is out of the question . . . The nests are not thick on the ground, as they are on the Razades, but at the same time are scattered in every part of this large island. There cannot be less than 500 and the figure may well stand near 1000. I do not think it would be extravagant to boast that the whole sanctuary, including all three islands, provides a home for two thousand pairs of Eider ducks . . . It appears then that in the nine years during which the Society has owned and protected the islands as a

bird-sanctuary the population of Eiders has increased approximately 100%. As far as the Razades are concerned it is approaching its upper limit and further increase is only possible at the expense of space now occupied by gulls.

« *Other birds seen:* Great Gray Owl — We had fine views of one of these birds on Basque Island, near the sand bar at the southwest end. — Mallard — One was seen clearly with Black Ducks at Basque Island. King Eider — A male in full plumage with the pearl-gray head and orange frontal lobes was seen with the Common Eider drakes at the Lower Razade, June 11. This is not so remarkable as one might expect; for in June 1937, two drake King Eiders remained at Cap à l'Original, some 20 miles down the coast, for three weeks and were constantly seen . . . Although it is very unlikely, it is not impossible that King Eiders may occasionally nest on the Lower St-Lawrence. As the females, eggs and down closely resemble those of the Common Eider, it would not be easy to detect them.»

On July 26 and 27 1948, Messrs Carl W. Buchheister and Allan D. Cruickshank, of the National Audubon Society, visited the islands and noted on their Audubon Field Card of Birds the following species, 53 in all: « Common Loon, Double-crested Cormorant, Great Blue Heron, Black-crowned Night Heron, Common Black Duck, American Golden-Eye, American Eider, White-winged Scoter, Surf Scoter, American Scoter, Red-breasted Merganser, Osprey, Ruddy Turnstone, Spotted Sandpiper, Greater Yellow-legs, Lesser Yellow-legs, Least Sandpiper, Semipalmated Sandpiper, Sanderling, Great Black-backed Gull, Herring Gull, Flicker, Hairy Woodpecker, Downy Woodpecker, Yellow-bellied Flycatcher, Alder Flycatcher, Barn Swallow, Cliff Swallow, Raven, Crow, Black-capped Chickadee, Red-breasted Nuthatch, Winter Wren, Robin, Olive-backed Thrush, Golden-crowned Kinglet, Red-eyed Vireo, Tennessee Warbler, Nashville Warbler, Parula Warbler, Magnolia Warbler, Cape May Warbler, Myrtle Warbler, Black-throated Green Warbler, Bay-breasted Warbler, Redstart, Pine Siskin, White-winged Crossbill, Savannah Sparrow, Slate-colored Junco, White-throated Sparrow, Fox Sparrow, Song Sparrow. »

The sanctuary has naturally been the object of constant care and attention. Every year, some of the directors visit the islands

to find out what is needed and to take the necessary steps against possible enemies and predators. For example, it was discovered in 1931 that a family of red foxes which had crossed to Basque Island over the ice during the winter, had settled there and were causing havoc among the nesting birds. The warden was instructed to destroy them; two adult males and four cubs paid with their lives their intrusion into a domain where they had no business.



From year to year, the system of protection has improved. Records show that in 1933 the federal warden appointed for three months, from May to the end of July, made 56 trips to the islands. The Society now has its own official warden with his motorboat, « Le Provancher », and he makes a weekly report to the secretary. He also transports members and visitors.

Posters were put up in the municipalities of St-Simon, Trois-Pistoles, St-Eloi and Ile Verte, and each year on the first Sunday of May the town crier of these villages warned the population that

no one was allowed to land on the islands without a permit. Letters were also sent to yachtsmen and boat owners.

But protecting the birds was not sufficient ; means had to be found to permit the study and observation of this birdlife by naturalists. After strenuous work, a blind was built at the top of two tall trees right in the midst of the heronry on Basque Island. A comfortable camp was erected at « l'Anse-au-Canot », the most favourable landing place on the island. On the Razades, blinds were installed at four strategic spots for the use of photographers.

Bird-banding — From 1925 to 1940 hundreds of birds were banded each summer with material obtained from the Biological Survey Dept, of Washington.

It was on July 14, 1925, that the first experiment was carried out by Dr D. A. Déry, a member of the American Bird Banding Association. Fifty young herring-gulls were banded at the Lower Razade. In spite of the fact that the small aluminum bands proved defective that year, there were four returns, according to Dr Déry's notes :

« The first came from Indian Harbour, Groswater Bay, Labrador, on Aug. 28, 1925. This young bird, banded at the respectable age of 2 months, had travelled nearly 800 miles from his place of birth.

« A second return came from Pidgeon Hill, New-Brunswick, and was dated Sept. 16th 1926.

« The third was from Ile Verte, P.Q., on Aug 10th 1927. It was considered a very interesting report because of the short distance between Ile Verte and the Lower Razade (about 12 miles), and seemed to indicate that the bird, banded in 1925, had returned to its birth place.

« The fourth was reported from Fall River, Mass. on Dec 14, 1928.»

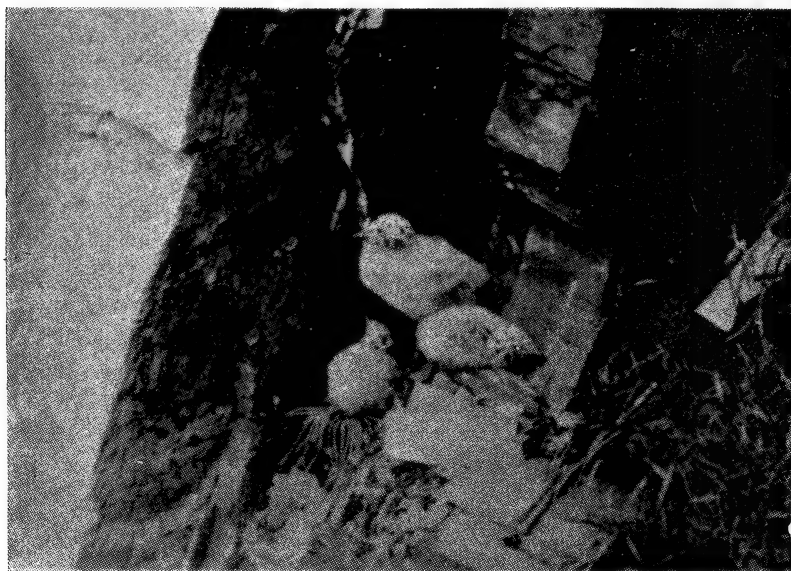
Unfavorable circumstances prevented the Society from continuing these experiments. Bird-banding was resumed in 1933 with the staff of the Biological Station. On July 22d, 333 young herring-gulls were banded at the Razades. In July 1934, 500 more were banded and only a shortage of material prevented the banding

of at least 300 others, which shows the prodigious numbers of these birds born on two small rocky islets, not to mention the other species.

From the 1933 and 1934 series, 24 returns were recorded and this percentage is considered very satisfactory according to Dr Richard J. Easton, of Boston, a specialist in the study of gulls.

In 1935, there were 695 bandings and several interesting returns. The records show that some of the young birds had visited Newfoundland, the Magdelene Islands, New-Brunswick and the Maine coast, going towards Florida and the Gulf of Mexico, where our gulls hibernate. Others flew up the St-Lawrence and there were returns from Sorel, Boucherville and Montreal, also from Lake Champlain, indicating a flyway towards New York and the Atlantic by way of the Hudson River.

1940 saw the end of bird-banding by the Society. Those 15 years of observation showed that our gulls migrate mainly to the Gaspé Coast and Newfoundland, New-Brunswick, Nova-Scotia,



Young Herring Gulls — Upper Razade

Photo L. Terrill

Maine, and as far south as the Gulf of Mexico, whilst a much smaller number, going overland, follow the St-Lawrence, Lake Champlain and Lake Ontario flyway.

It is obvious that the young gulls return to their place of birth to breed when they have become adults ; however, those not yet matured do not mix with older ones nesting on the Razades, they scatter along the St-Lawrence, from Rimouski to Rivière-aux-Repas, in Gaspé.

The amazing sense of direction of these birds as well as their prodigious faculty of foreseeing atmospheric changes have always puzzled naturalists. Long-distance flying by different species has been the object of particular study and bird-banding has certainly proved its usefulness in research concerning migration and distances covered. Nevertheless, there are still numerous problems to be solved in that direction. The layman can only marvel at the passage of thousands of birds overhead and wonder at their destination . . . Man still has a long way to go in unravelling the mysteries of nature.

Another interesting problem concerning gulls is the study of their seasonal plumage and this offers a nice field of observation to some young naturalist desirous of perfecting his technique.

Eiderdown — Anent this valuable product and the duck which produces it, Dr John B. May wrote in 1945 :

« Eider down has long been an important source of income to the people of Iceland and Norway, and in recent years the Canadian government has been actively engaged in an attempt to teach the natives of Labrador and the St-Lawrence shores to protect the American Eiders whenever they are found breeding and to show the people how to collect, clean and market the down. The value of an Eider when considered as an article of food is not great, but as a potential producer of an annual crop of eider down the bird is decidedly worthy of careful and intelligent conservation ».

In 1935, the Provancher Society decided to try the experiment of collecting eider down on the Razades. The necessary permits were obtained from Ottawa and the first harvest gathered in July, but unfavourable weather, rain, wind and fog, hindered operations. Approximately ten pounds were picked up and the best cleaning possible by inexperienced workers produced nearly two pounds

of down, which however, was not of good quality. A second attempt the following year did not yield a satisfactory product.

The reason for this failure became apparent after careful study of the conditions prevailing on the Razades. Those islands are treeless and there is nothing to protect the surface which is continually exposed to sea winds.* The vegetation consists of sea-rocket, beach peas, beach grass and other marine plants which cover the entire area and which the birds must use in the construction of their nests.

The nest of the Eider is first lined with dry stems of grasses and nondescript litter of all kinds, and shows very little of the gray down of the mother. As the eggs are laid, more down is plucked from her breast and it becomes mixed up with the stems, twigs, etc. until the whole mass is packed solid under the mother's weight. Under such conditions a thorough cleaning of the down is practically impossible, and the experiments were not carried any further. The directors also came to the conclusion that the area was too small to produce sufficient quantities.

Entomological Survey

For some years the directors had had in mind an inventory of the insects on the islands. In August, 1946, Rev Ovila Fournier, professor of Entomology at the University of Montreal, President of the Société Canadienne d'Histoire naturelle and of the Young Naturalists' Clubs, of Montreal, accompanied by Mr Joseph Duncan, Assistant-entomologist of the Department of Agriculture, Quebec, spent a few days on the islands.

Their preliminary report was published in our 1946 year-book and revealed the presence of certain species not previously reported in Quebec.

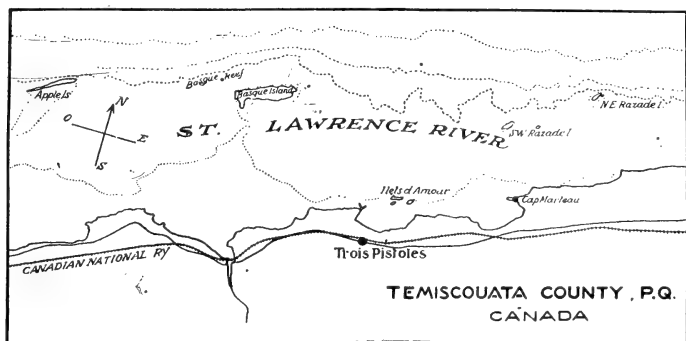
A second excursion was made in June 1947 by Mssrs Jos Duncan, P.E. Mercier and R. Garneau, Dept of Agriculture of the Province, and their report is being published this year.

A third report will be printed next year to cover a number of species sent to other institutions for identification. We also hope that another trip can be arranged in the fall in order to include species whose cycle was not sufficiently advanced at the time of previous visits.

As stated by Rev Fournier in his 1946 report, the presence of so many insects on these small islands is explained by natural causes such as flotsam and jetsam which drifted to the islands carrying the usual quota of grubs and larvae, the numerous trips by small boats from the mainland, particularly during the time when Basque Island was inhabited and farmed, drifting trees and pulp wood, wreckage of all kinds which landed on the shores with their cargoes of insects.

Maritime Topography

If the Provancher islands are appreciated by ornithologists and botanists the same cannot be said for navigators. Nature seems to have made them difficult of access, except by small boats, and thus afford a safe haven for birds.



In « The St-Lawrence River Pilot », Canadian edition, the following descriptions are found :

« *Razades Islets* — N. E. Razade Islet lies about 16 miles southwestward of Cape Orignal, and $1\frac{1}{2}$ miles from the mainland, to the southward ; S. W. Razade is $1\frac{1}{2}$ miles southwestward from N. E. Razade, and $1\frac{1}{2}$ miles off shore. These islets are each about a quarter of a mile long, rocky, low and bare of trees. There is no passage for vessels between them

and the south shore. Shoal water extends about 2 cables⁽¹⁾ northward of N. E. Razade and about 7 cables northward of S. W. Razade. A small group of rocks, which dry about 4 feet at low water, lies about 5 cables northeastward of S. W. Razade Islet.

« The shore, between N. E. Razade and the east end of Green Island, is generally low, with occasional rocky points surmounted by trees. The land rises in undulating ridges to the back ranges, 700 to 1000 feet high, with no conspicuous summits. The shore is fringed with extensive flats, drying at low water for the most part. The 3-fathom contour ⁽²⁾ is practically a line between N. E. Razade Islet and Green Island Reef, extending slightly off the north side of Basque Island. The islands lie near the northern edge of this shoal water. The depths are very irregular within this 3-fathom contour, except between S. W. Razade and Basque Island, where good water for small craft can be carried to within a mile and a half of Trois-Pistoles pier . . .

« *Basque Island* — This island, the northeast end of which lies $3\frac{3}{4}$ miles southwestward of S. W. Razade Islet, is $1\frac{1}{4}$ miles long and a little over 2 cables wide. It is thickly wooded, the summit of the trees being 130 feet above high water. The water is very shoal along the northwest side to a distance of half a mile from the island. From the southwest point and running southeastward is a sandy pit which at low water is almost joined to the drying flats extending from the mainland, a deep hole less than a cable wide separating them.

« From Trois-Pistoles southwestward, drying flats extend to a considerable distance from the shore. These flats consist of sand, mud and large boulders. Just outside the edge of the drying line are great numbers of these boulders which begin to uncover at about three-quarter ebb tide. A group of rocks, the highest of which dries 13 feet, lies southward, distant $1\frac{1}{2}$ miles from the southwest end of Basque Island.»

(1) A cable is 100 fathoms, or 600 feet.

(2) See small map on preceding page.

This brief chapter on topography would not be complete without a few words on the phenomenon of the «mirage » so often witnessed in the lower St-Lawrence during the summer.

This mirage results from the contact of warm moist air with a surface of water colder than its dew point. It is seen mostly during July and August on fine days when the sky is clear and there is no wind or a very light breeze. It is generally after a fog that it shows its most remarkable effects. Shapes and contours assume fantastic forms : small islands look like flower pots ; ships present a double image, the upper one being inverted ; islands appear with a flattened top and walled sides ; the hull of a ship may be raised to an enormous height and the sails or superstructure very small and hardly visible.

All these capricious forms seem to be the result of two or more images, alternately erect and inverted, either distinct or mingled together. Sometimes these images separate gradually and become distinct or they may unite to form a single figure. This often occurs within a few minutes and produces an odd variety in the different forms assumed by objects. A line of trees raised above the level of the rest and looking like a hedgerow may disintegrate into a straight wall or an immense table. Islands appear elevated in the air with precipices all around. The images of two islands may unite to join their wooded tops and leave an arch beneath.

The interesting records of The Literary and Historical Society of Quebec contain the texts of two lectures delivered on this subject by Dr William Kelly, R. N. Surgeon, in 1832 and 1836. He mentioned the notes left by Baron Humboldt in his « Personal Narrative », and the observations made by Admiral Bayfield during his surveys of the St-Lawrence. (See « Transactions of The Literary and Historical Society of Quebec », Vol III, 1st series).

A few notes on the Provancher Society

It was founded in 1918 and incorporated in 1919 by letters patent from Ottawa.

Its main objects are the protection of wildfowl and all indigenous species, and the development of a practical sense of conservation in the public, particularly among the young people.

The « moving spirits » were Dr D. A. Déry and Mr Reginald Meredith, N.P., of Quebec City, who are still members of the board of directors and take a leading part in all activities.

The Society is bilingual and publishes an annual report in both French and English. The presidency alternates annually between both nationalities.

The bird colonies of Eider Ducks, Herring Gulls and Herons are known throughout America and even in Europe, and the visitor's book contains the signatures of outstanding naturalists.

Principal undertakings and achievements of the past are: the restoration of the Basque ovens, the erection of the stone cross on the Upper Razade, the Napoléon Comeau monument at Godbout, Saguenay Co, the institution of a Provincial « Bird Day », not to mention a great number of public lectures, radio talks, newspaper articles and bird-house building contests. It was at the Society's request that several large private properties around the Quebec district were erected as bird sanctuaries.

Directors of the Society contributed to the foundation and organization of The St-Lawrence River Biological Station, at Trois-Pistoles, P.Q.; our educational propaganda led to the foundation of several Natural History societies. Some of our directors and members also cooperated towards the establishment of the Zoological Gardens, at Charlesbourg, near Quebec.

The Society was instrumental in bringing to Quebec the 1932 convention of The American Ornithologists' Union. It also presented to the Quebec public such noted naturalists and lecturers as James P. Chapin, Alfred M. Bailey, John B. May, Jack Miner, Grey Owl, George Sutton, Brother Marie-Victorin and Jacques Rousseau, Cleveland P. Grant, etc.

The Society has no technical staff. Founded by amateur naturalists, it has been maintained by people interested in natural history; the provincial government has acknowledged its worth by contributing an annual grant to help defray expenses.

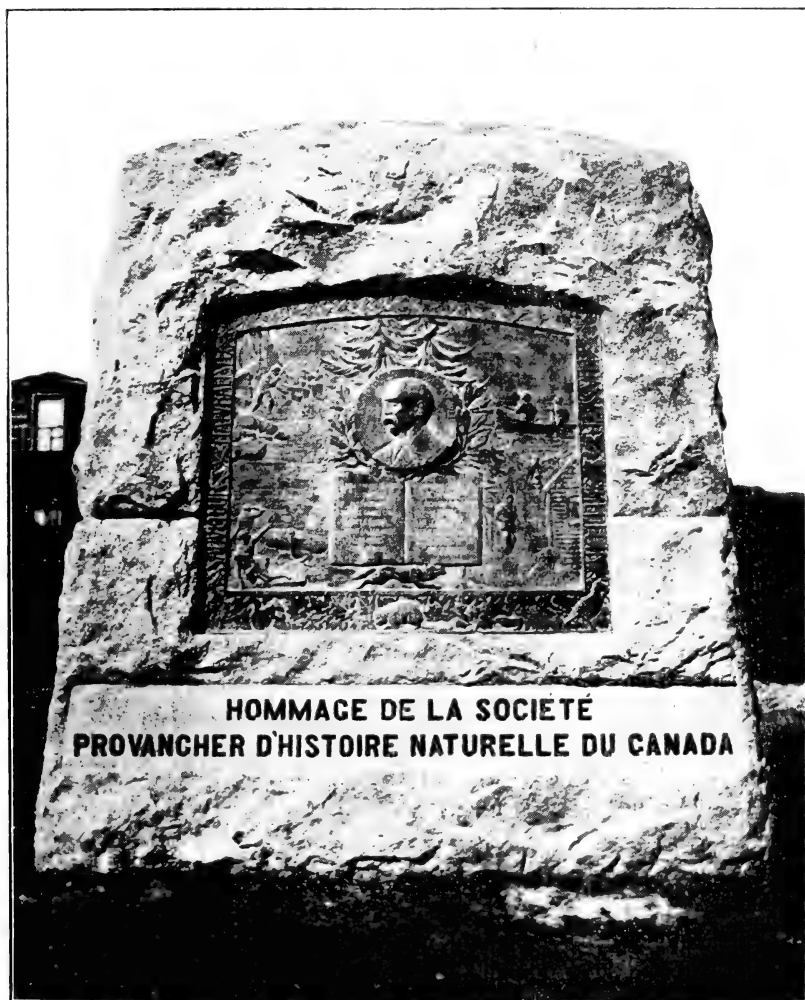


Photo Yolande Comeau

Comeau's Memorial, Godbout, Noth Shore, P. Q.

We are affiliated to the National Audubon Society, the Ottawa Field-Naturalists' Club and the Association canadienne-française pour l'avancement des sciences (ACFAS).

We have our bird colonies on Basque Island and the two Razades, about 150 miles east of Quebec City in the St-Lawrence. We keep a warden and a motorboat at Trois-Pistoles, P.Q. Visitors are always welcome and can be transported to the islands for a very reasonable fare.

We are preparing a kodachrome film on Trois-Pistoles and its islands and hope to have it ready for presentation next spring.

The Society requests and welcomes the assistance of all well-intentioned citizens without distinction of race, creed, age or sex.





